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The Convention Papers

Very tangible evidence of the valuable work done by the members of committees of the different associations which will meet in Atlantic City next month is available this week through advance copies of the reports. These reports were mailed on Wednesday to those who are entitled to receive them, and include practically all of those which will be presented at the meetings of the Engineering, Accountants' and Transportation & Traffic Associations. To all who are acquainted with the problems which are now predominant in electric railway operation these reports are the best evidence of the value of association work. Practically every one of them is the result of the combined judgment not only of members of the committee who are experts in the subjects discussed by them, but of all of the members of the association whose replies to data sheets were used in the preparation of the report. As a whole they constitute the most valuable set of papers on electric railway topics ever compiled under the auspices of the association and presage a most attractive series of meetings at Atlantic City.

While Mob Violence Continues

The correspondence between Governor Harmon, of Ohio, and Mayor Marshall, of Columbus, in reference to the strike in that city is neither edifying nor satisfying. The Mayor, plainly seeking to divert criticism from himself, urges the Governor to call a special session of the Legislature to pass laws requiring compulsory arbitration and prohibiting over-capitalization. The Governor retorts that the Mayor seeks to make up for lack of efficiency in enforcing existing laws by fertility in the recommendation of new laws. This may be an interesting side play in the tragedy which residents of Columbus have been forced to observe, but it is not a diversion which will secure a long-needed protection for cars and passengers in the strike-ridden city. Although neither the Governor nor the Mayor has prevented mob violence, any honors that are due either of these officials for effort to quell riot rest with the Governor, whose state troops have managed at least to check the disorder. No one of the issues involved in the strike or the incidental questions arising therefrom which may affect political futures is so important to the public as a whole as a rigorous policy of repression of disorder.

Weight of Car Paint and Varnish

In one or two recent studies of the weights of cars careful determination of the weights of all the detail parts as the cars were being erected has revealed some surprising facts about the paint and varnish used. On a 12-bench open car, finished for the most part with varnish, the paint and varnish used weighed 180 lb., almost as much as the two center sills. The paint and varnish used on a 14-bench car built at the same

time weighed 221 lb., while on a double-truck closed car with prepayment platforms the weight of the finishing surface applied was nearly 600 lb. An advance estimate of the weight of a new design of car should not omit a liberal allowance for the paint. To prepare properly the surface of wood for painting it is loaded with filler, literally as heavy as lead, and this is followed with two or more color coats of heavy oils and pigments, on top of which the varnish coats are applied. It would be foolish to sacrifice the thoroughness of the painting for the sake of reducing the weight of the car. The alternative is to minimize the area of surfaces to be painted by substituting wherever possible a varnish finish. Thus a wood veneer headlining for a double-truck car weighs nearly 100 lb. less than painted composite board, and most of this difference is accounted for by the paint which is used.

Depreciation Charges in Kansas City

Continuing its practice of making some provision for depreciation and accruing renewals other than that contained in current expenditures for repairs, the Kansas City Railway & Light Company appropriated from surplus for this purpose in the fiscal year ended May 31, 1909, the sum of \$400,000. This sum is equal to 6.04 per cent of gross earnings and it represents a little more than the final surplus available for the year. That is to say, the net divisible income as shown in the report to stockholders was \$864,089 and against this amount there was charged \$476,105 for dividends and the depreciation allowance stated, making a total of \$876,105, thus leaving \$12,016 to be charged against the surplus carried over from the previous year. In the issue of the *ELECTRIC RAILWAY JOURNAL* for Nov. 7, 1908, attention was directed to the fact that during the five years ended May 31, 1908, this company set aside \$829,814 on account of depreciation, or an average for this period of \$165,963 annually. In the judgment of Dickinson, Wilmot & Sterrett, certified public accountants, who examined the accounts for the company, this amount "was not adequate for the maintenance of the property over a series of years." The larger appropriation made in the ensuing fiscal year by the company is a satisfactory effort to meet more nearly the requirements of proper accounting.

Proposed Change of Association Name

The proposed change of the name of the American Street & Interurban Railway Association to the American Electric Railway Association is a good move. The present name is cumbersome and far from euphonious. Moreover, it does not properly represent the field of the association, because it does not include the companies operating electric trunk line service which are seeking the association for assistance in the solution of their electrical problems. The only two objections which have been raised to the name are: (1) that all of the association pins would become obsolete; (2) that the new name excludes other motive powers than electricity. Both arrangements have been made by which holders of the association pins can exchange them for new pins with the proper initials without expense, and the objection in regard to some other motive power is largely theoretical. Electricity promises to be the predominant power for a long time of the companies which would naturally affiliate with the association, and the name would not prevent a consideration by the association of gasoline cars or any possible substitutes for electricity. The same general situa-

tion was presented to the publishers of this paper when its name was changed two years ago to the *ELECTRIC RAILWAY JOURNAL*, and the conclusion was reached that the arguments in favor of this change, as in the case of the association, outweighed the disadvantages.

AN INTERESTING FARE DECISION

The Public Service Commission of New York, Second District, recently decided that under certain circumstances an electric railway company is warranted in charging a higher through fare between two points than the sum of the local fares between those points. The practice of charging more for a through ride than the sum of the local fares seems peculiar and a reversal of the usual custom, but under some circumstances such a plan may be perfectly proper and desirable. Indeed, several cases of this kind relating to steam railroad freight rates have been considered by the Interstate Commerce Commission and have been upheld. The case in question concerned the interurban fare between Albany and Troy over the lines of the United Traction Company, which also operates the local cars in each city. The fare charged on the through cars between the two cities is 10 cents for a ride of approximately 7½ miles, and for this fare a passenger is entitled to ride from the center of one city to the center of the other and also to a transfer between the local cars in either city and the through cars. But a transfer is not given to a passenger from the through car to the local cars in the city to which he is traveling if he has already used a transfer at the beginning of the journey, under the rule of the company that "no transfers are issued on a transfer." Hence, to ride from any point in one city to a point beyond the terminus of the through cars in the other city passengers on through cars are required to pay a fare of 15 cents.

The city limits of Troy and Albany are not contiguous, but the railway company some time ago voluntarily extended the 5-cent local fare limits in each city to a point about half-way between the two cities. The result is that a passenger can board a car at any point in one city, pay a 5-cent fare, obtain a transfer and ride to the zone limit; then by taking another car, and paying another 5-cent fare, which entitles him to a transfer, he can ride to any point in the other city. In this way, by changing from one local car to another, at the zone limit, a passenger may ride for 10 cents over the same route and get on and off at the same points as the through rider who is compelled to pay 15 cents.

A complaint lodged against the company said that the through fare should be revised downward to eliminate this discrepancy, but the commission ruled that the only grounds on which the 15-cent fare could be ordered reduced were that it was unreasonable. Such a view was hardly warranted, as the maximum distance from any part of Troy to any part of Albany is approximately 20 miles. The only course open by which the two fares could be harmonized was to revise the local fares upward by introducing a local 5-cent zone between the two cities, a plan which the commission intimated the company had the right to follow, although it would cause many passengers to pay increased fares. The only criticism that the commission made of the practice of the company was that its regulation of "no transfer issued on a transfer" hardly covered the situation, because as the zone system of fare collection is used on

the through cars the passenger at the midway point actually pays a second cash fare. At the suggestion of the commission, the company has changed the wording of its rule, so as to explain clearly that on through cars a passenger who has already used a transfer in either Albany or Troy will not be entitled to another when he reaches the other terminus of the through cars. With this alteration in the rule put into effect, the commission dismissed the case.

THE DETROIT FAILURE

It is unfortunate that the negotiations between the Detroit United Railway and the representatives of the city of Detroit have resulted in so large a loss of labor, time and money. Upon the appointment of the Committee of Fifty a year and a half ago to investigate the street railway situation hopes were entertained of a settlement of the question of renewal of franchises, but these expectations have not been near realization from that time to the present.

The committee, composed of representative citizens from all walks of life, began its consideration of the problem with an evident desire to formulate a satisfactory settlement of the issues which had furnished a succulent bone of contention for the politicians and agitating newspapers. As one feature of the investigation an appraisal was undertaken. It appears that the Committee of Fifty, because of its inexperience in such matters, regarded this phase of its work simply as a detail in the entire investigation with which it was charged. Certainly, the full committee, in entrusting to a small sub-committee the prosecution of this most important feature of its program, failed to appreciate the vital and delicate nature of the issues involved in valuation. If the figures offered by the sub-committee and its engineer should be adopted as a basis of settlement, a severe loss would be inflicted upon the company.

When it was found that an independent appraisal on behalf of the company indicated values equal to double those declared by the sub-committee and its engineer, a proposal to arbitrate the differences was made. It was a fair proposal and should have been carried to some conclusion, either with such a board of able jurists as was selected but somewhat ignominiously disbanded or with a board of competent engineers, experienced in the appraisal of property of this character. The company would have defended its figures, but the committee was presumably a non-partisan body working for a settlement in the interest of the city and its figures should have been as open to criticism as the totals of the company.

The failure of the Detroit plan dispels an illusion as to the value of investigations and appraisals of this type. In Detroit the Committee of Fifty was regarded by some as practically an official body representing the Mayor and by others as a private organization without authority. But its work has aroused controversies concerning the values of property which have suggested to the radical element a wholesale slaughter of securities. These securities are undoubtedly in the hands of purchasers who, if they considered the question at all, believed that a reasonable settlement would be reached. The complete failure of negotiations shows that either the Committee of Fifty should have been appointed with some power or its work should have been regarded from the outset as one of merely incidental interest, which could lead to no solution of the problems concerned.

A MODERN CAR HOUSE AND TERMINAL

The Park Terminal car house of the United Railways & Electric Company of Baltimore, Md., described elsewhere in this issue, is a splendid example of the best modern practice in structures of this kind. It is not merely a storage place for rolling stock, but a building which combines durability, ornament and convenience. Considered simply from an architectural standpoint, this structure proves that the buildings of a street railway system can be made as much a cause for civic pride as those erected by a municipality. It is usually assumed that the embellishment of a utility building necessarily involves large additional cost. This is not true. In Baltimore the only extra expense was that required on account of the use of parapets and a few ornamental columns. The materials used in the general construction of the building are of the most approved fire-resisting character, but, in spite of this fact, the company did not hesitate to install complete hose and sprinkler systems, underground oil storage, conduit wiring, rolling steel shutters and other protective features which would make a disastrous fire almost impossible.

In this connection one should not underestimate the effect of good lighting in helping to avoid conflagrations. Both the natural and artificial illumination are so good in this building that no dark corners or pits have been left for the accumulation of oil-soaked packing or other rubbish which would furnish ready fuel for a fire. In general, one could truthfully say that this car house represented the last word in safety and operating flexibility if it had been possible to build the structure with exits at both ends. Unfortunately such a construction was not practicable. It is doubtful, however, whether it would be found possible to design any other form of single-end car house in which so much storage room is combined with ample facilities for other purposes.

A very interesting feature is the lay-over area which was provided because this car house is the terminus of five important lines leading to Druid Hill Park. This area is advantageous in several ways. Thus, it is now possible always to have available a reasonable number of cars to handle the crowds from the park without blocking up the streets or disturbing the cars in the storage bays. In stormy weather this section offers a good place for clearing cars of snow and mud before they proceed on their trips. Furthermore, the danger from fire is diminished because the doors of the storage bays can be kept closed nearly all the time. In other car houses the shutters must nearly always be kept open because many of the storage tracks are also used for lay-overs. The accessible locations to all of the entering lines of such important facilities as the sand and signal-lamp rooms are typical instances of the forethought exercised by the designers to see that both the lay-over and storage inspection work could be carried out conveniently and quickly.

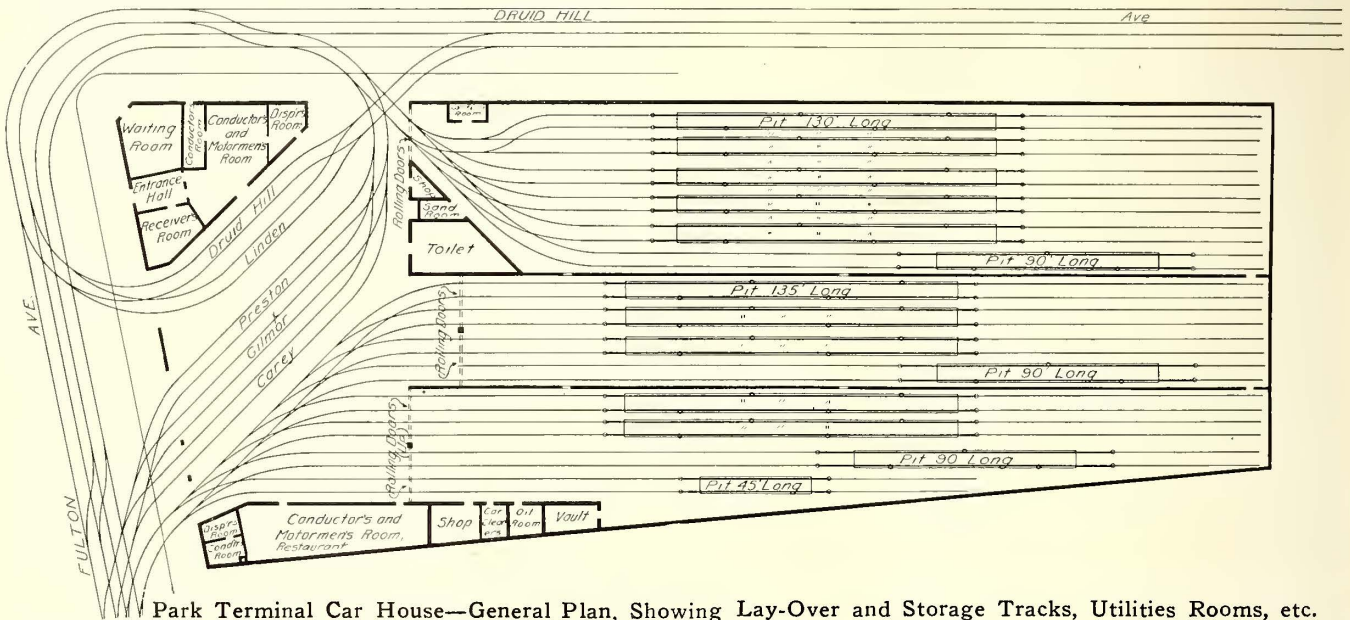
Equal attention was paid to making this building a most attractive rendezvous for the large number of men who are employed on the Park Terminal lines. The assembly room, bowling alleys, reading room, lounging room, toilet, lockers and restaurant afford conveniences which are far more characteristic of a high-class club than of the average street railway car house. It is but natural that very few of the employees to whom are offered such surroundings as these will be tempted to spend their free time in liquor saloons. The uplifting influence thus brought to bear on the men must react favorably both on their home lives and on their attitude toward their employers.

PARK TERMINAL CAR HOUSE, BALTIMORE

The United Railways & Electric Company of Baltimore has recently placed in service its Park Terminal car house, which forms a noteworthy addition to the group of splendid car-storage structures built by this company. It is the sixth of this class of reinforced-concrete construction. The new building is directly opposite Druid Hill Park, one of the handsomest public grounds in Baltimore. It houses the rolling stock of the five car lines which run by the main gateway. Because of its proximity to the park and in line with the construction

GENERAL CONSTRUCTION

Not only is the building a departure from conventional lines in its design, but it possesses many advantages that set it in the fore rank of structures used for similar purposes. In the first place, it is absolutely fireproof. Reinforced concrete is used throughout for the walls, roofs and columns—for everything, in fact, except the exterior walls, which are of brick and ornamental terra cotta. Even the stairways are of concrete covered with Mason safety tread. A metal cement finish is used for the round columns shown in the Fulton Avenue view of this building. The desire for neatness and perma-



Park Terminal Car House—General Plan, Showing Lay-Over and Storage Tracks, Utilities Rooms, etc.



Park Terminal Car House—General View, Showing the Parapet Style of Construction

policy followed by the Baltimore management, the straight utilitarian lines generally observed in car-house building were ignored and by more ornamental architecture there was erected a structure in perfect harmony with the surroundings. As a matter of fact, the new car house was erected on a site hitherto taken up by a number of frame sheds and buildings in rather poor condition, so that the improvement of the district has been decidedly marked.

nence may be appreciated from the fact that copper instead of galvanized iron has been used for the flashing on the roof and sides. The car-house floor is composed of a 6-in. cinder foundation covered by 5 in. of concrete and topped by a cement finish 1 in. thick. Cement floors are also laid in the various shop utilities rooms and main toilet, but wooden floors are laid in the offices, waiting room and employees' quarters. The partitions between the first class of rooms are of brick and

between the latter of steel lath and cement. The liberal skylight area provided, together with the spotlessly white walls and ceilings, gives the interior of the car house a remarkably cheerful appearance. The trolley troughs, which are painted drab-gray, are suspended through pairs of strap irons from the reinforced-concrete roof girders.

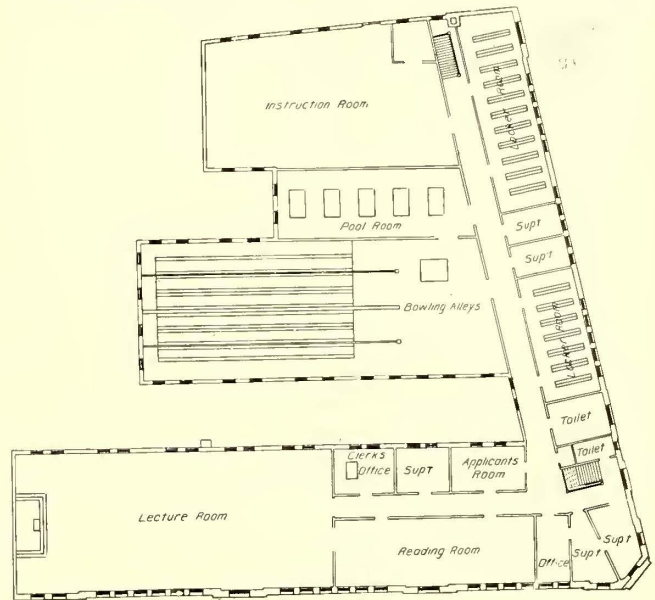
In addition to being constructed of fireproof materials, the entire structure is provided with an elaborate fire-protection system, including the General Fire Extinguisher Company's dry-valve system, Grinnell aisle and roof sprinkler heads, and alarm gongs with a master indication board. An ample supply of water can be brought into play instantly at the fire points from one 50,000-gal. gravity tank and four 7500-gal. pressure tanks. The four pressure tanks are located in a reinforced-concrete enclosure, the supporting columns of which are extended to carry the gravity tank. All the tank piping is carried in magnesia covering to avoid danger from freezing. The gravity fire doors are not of the ordinary sheathed type, but are made of an approved fireproof composition called Sagax. The swing doors also are fireproof and all are provided with pneumatic checks.

AREA AND TRACK LAYOUTS

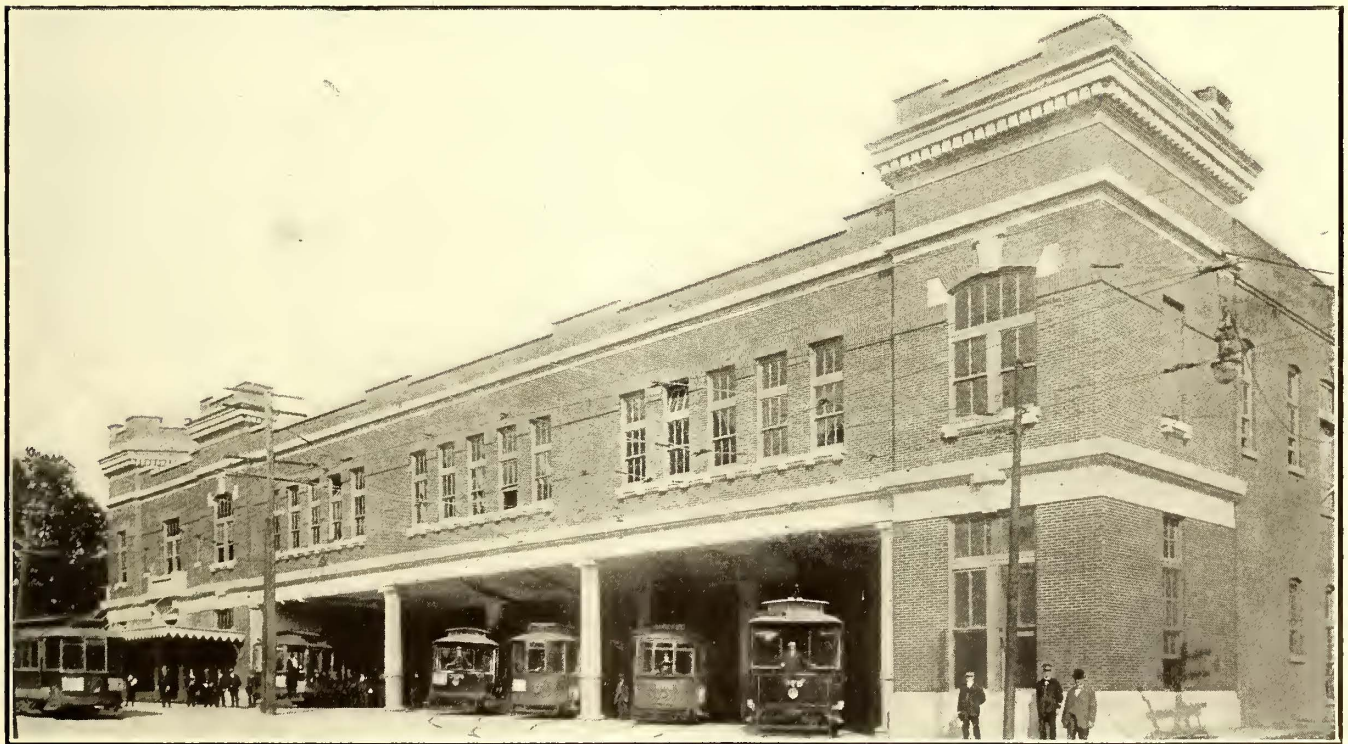
As shown in the accompanying plan, the structure is located at the intersection of Druid Hill and Fulton Avenues. Its frontage on the first avenue is 472 ft. 1 in., on the second avenue 190 ft. 9½ in., on Florence Street 433 ft. 1 in., and it is 146 ft. wide at the rear, where it adjoins a substation. A portion of the building is two stories high with a row of parapets, as illustrated. The main parapet is 50 ft. high. In general, the building is one of the largest put up by the company. The ground floor area is approximately 76,000 sq. ft., and some idea of its capacity may be obtained by bearing in mind that there is sufficient floor space to store at one time 100 45-ft. cars and still leave ample space for their proper handling. As ex-

served that the division walls of the three storage sections do not extend all the way to Fulton Avenue, but only to the rolling steel doors, the locations of which are indicated on the plan. Consequently, there exists a large area under shelter through which cars from the different lines may be brought directly into the storage bays, be looped around the utilities rooms or be kept on the tracks for lay-overs. The lay-over area is furnished with drains to carry off dripping rain or snow from the cars.

The track layout shows that cars from the Preston, Gilmor



Park Terminal Car House—Plan of the Second Floor



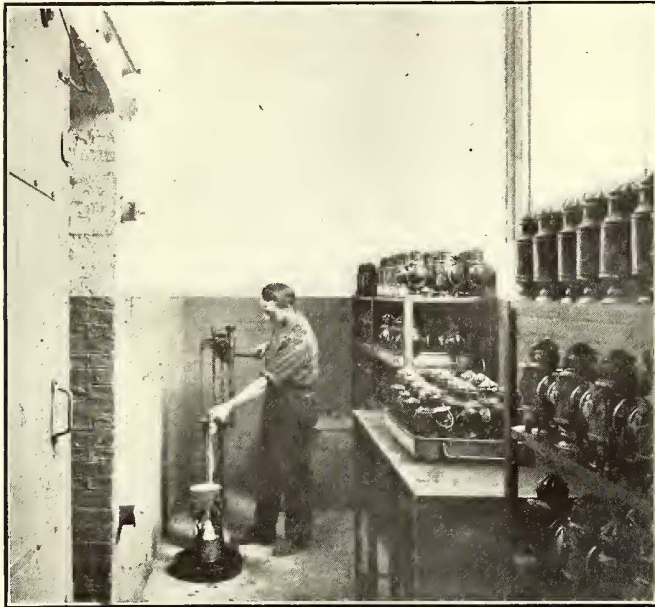
Park Terminal Car House—View Along the Fulton Avenue Side

plained hereinafter, the necessity of having cars standing on the streets has been overcome by so arranging the tracks that the lay-over of the cars occurs within the car-house structure.

Broadly speaking, the car house proper is divided into three bays separated by 13-in. brick walls with fire-door openings. The first bay contains six tracks, the second four tracks and the third four tracks. Each bay is provided with repair pits of both the depressed and flush aisle types. It will be ob-

and Carey lines can be switched on to storage tracks 7 to 14 inclusive, or can be made to circle back to Fulton Avenue via Druid Hill Avenue. Similarly, Druid Hill Avenue and Linden Avenue cars can go through the front of the building around the transportation department's rooms to Fulton Avenue and return up Druid Hill Avenue or else can be switched over to storage tracks 1 to 6. These combinations are the usual ones, although a car from any line could be brought to

any track. It will be understood that the cars of all five lines pass the waiting room. The latter is commodious and well-lighted and is located at the corner, where every car must pass. A handsome metal awning or marquise is suspended in front of this waiting room to afford further comfort and protection to the public when large numbers of people are driven out of the park by sudden storms. A clock is to be placed by the company in the terra-cotta panel over the marquise.



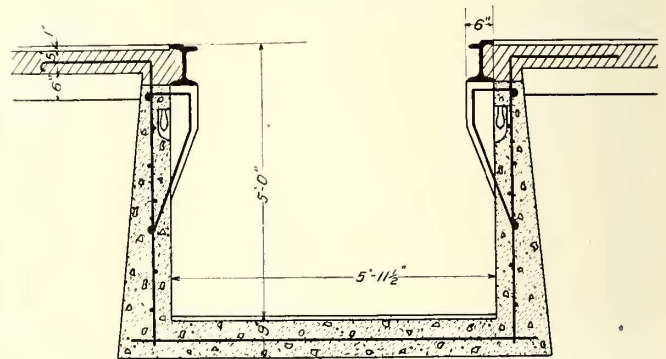
Park Terminal Car House—Pumping Oil Into the Signal Lamp Room

The general plan also shows the convenient location of the sand room, the small locked storerooms for brake shoes, register fixtures, etc., from the shop department and the main

avoids waste of oil and fire danger. Both oil rooms are protected by double fire doors. The third bay also contains a storeroom, car cleaners' room and a shelved transfer vault with mezzanine floor and dumbwaiter for one month's transfers and other cashier's supplies.

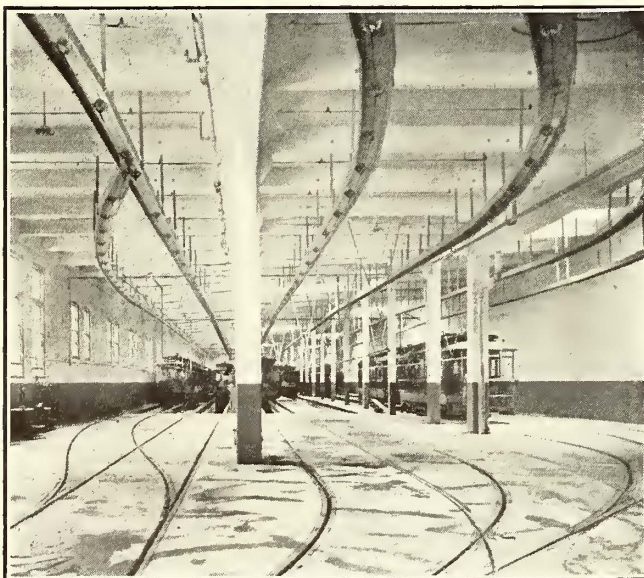
PIT CONSTRUCTION

The three storage bays have repair pits of both the depressed and flush aisle type. There are two depressed aisle pits 130 ft. long and four which are 135 ft. long; and of the other type there are one 45 ft. long, three 90 ft. long, three 130 ft. long and one 135 ft. long. The depressed aisle pits are particularly convenient for doing such work as the drawing down of pedestal bolts on some types of the company's trucks. The floor of the depressed aisle is 18 in. below the head of the rail. These pits are of the same general design used in the other Baltimore car houses. The 9-in. girder rails are carried on columns made up of two 5-in. channels spaced 10 ft. centers. Each rail is riveted to these channels through steel

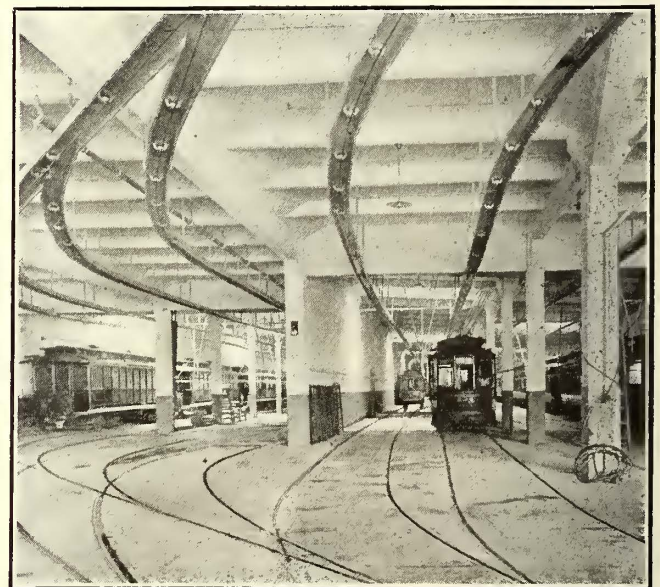


Park Terminal Car House—Section of New Standard Design of Flush-Aisle Pit

tie plates at the sides and a 6-in. x 6-in. angle between the channels under the rail base. The flush-aisle pits are 5 ft. deep from the pit floor to the top of the car-house floor and



Park Terminal Car House—Sprinkler Piping, Trough Suspension, etc.



Park Terminal Car House—Interior View, Showing Construction, Fire Gong, Hose Pipe, etc.

employees' toilet room, all placed in a triangular section between the first and second bays. The toilet room hoppers are provided with exhaust pipes to remove foul air, while the urinals are continually flushed. The first bay also contains a lantern room with iron shelves where all signal lamps and signal oils are kept. The oil is stored underground outside the car house and is obtained as required through the Bowser oil pump illustrated. The oil room in the third bay contains three pumps from the same manufacturer for bringing motor oils from as many underground storage tanks. This method

are 5 ft. 11½ in. wide. The rails are not carried on stringers, but on steel brackets spaced 5 ft. 2 in. and set at such a height in the pit walls that the top of the rail is flush with the car-house floor. These brackets replace the reinforced-concrete pilasters used for the same purpose in the earlier car houses. All pits have well-drained concrete floors and concrete stairways which are reinforced with an angle at the edges to prevent chipping. They are lighted with 16-cp lamps set in screened recesses in the pit walls at intervals of 10 ft. Blocks for these recesses were furnished and set with the lamp bases

and conduit as the walls were being built. To minimize fire risk, only one portable cluster is used throughout the entire car house.

EMPLOYEES' CONVENIENCES AND GENERAL UTILITIES

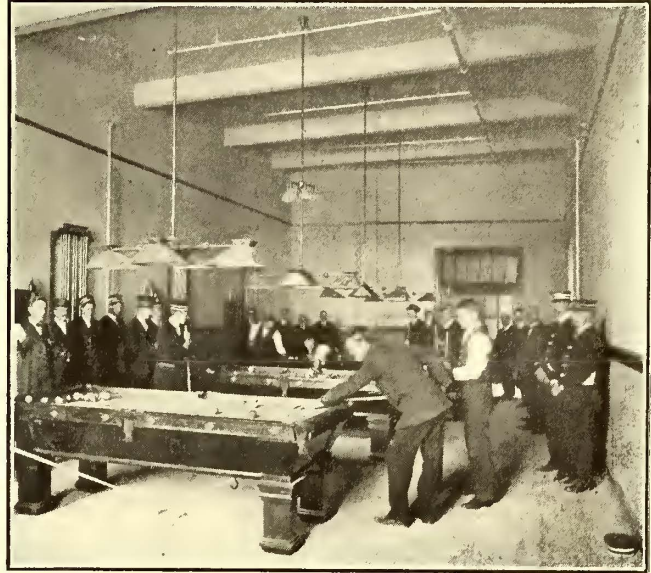
In the arrangement of this car house a great deal of thought has been given to the comfort of the transportation employees, both to enable them to perform their lay-over duties most conveniently and to spend their free time in the most

pool tables and one billiard table. In a room on the Florence Street side there will be installed an elaborate instruction outfit, consisting of multiple-unit and air-brake equipments and the rear section of a car for conductor's instruction. To enable heavy parts to be brought into this room a short hoisting track has been erected to reach a pair of doors overlooking an adjoining alley.

On the second floor there are two locker rooms which con-



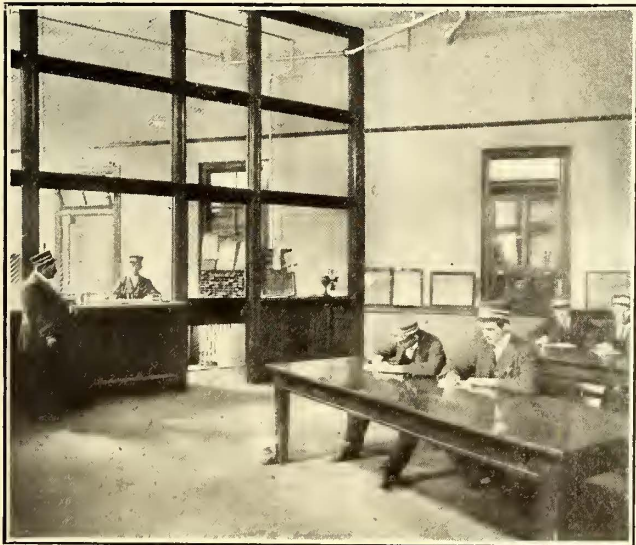
Park Terminal Car House—Part of the Main Toilet on the First Floor



Park Terminal Car House—A Lively Evening in the Pool and Billiard Room

agreeable manner. The plan of the first floor on page 426 will show that two sets of utilities rooms have been provided for the despatchers, receivers and platform men, including special quarters where conductors can make out their trip reports. A portion of the platform men's room on the Florence Street side has been converted into a restaurant with tables and a

tain 600 individual metal lockers furnished with top and bottom louvers for ventilation. There is also provided on this floor, next to the reading room, a set of three intercommunicating rooms for examining applicants for employment. In the first the candidates wait; in the second they are interviewed, and in the third their pedigree is recorded. The



Park Terminal Car House—Conductors and Receivers' Quarters



Park Terminal Car House—Concrete Stairway from Crew Room to Upper Floor

lunch counter where sandwiches, coffee and other refreshments can be purchased by the men for little more than cost, inasmuch as the company has supplied the kitchen outfit, besides furnishing the room, light and heat.

Upon the second floor of the building accommodations have been arranged in the way of a large reading room, which is also supplied with materials for table games; an assembly room, holding about 750 people; a splendidly equipped bowling alley with six alleys, and a pool and billiard room with four

front rooms on the Fulton Street side are used for the offices of the four local division superintendents, toilets, locker equipments, etc.

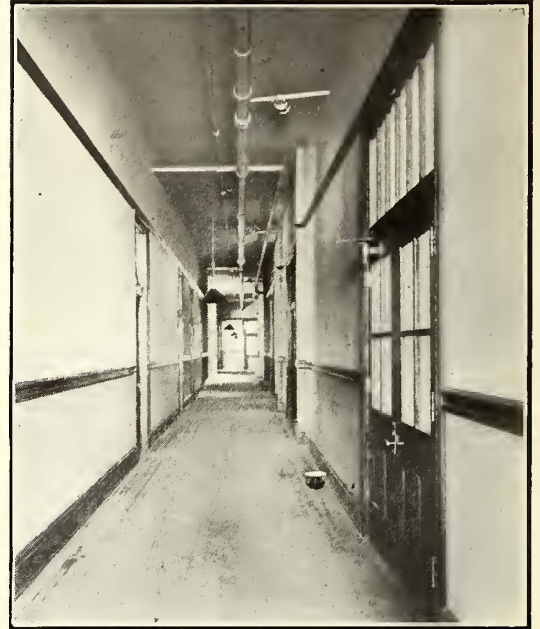
LIGHTING, HEATING, ETC.

All of the lighting circuits are in conduit. The lighting in the car house, except the pits, consists principally of 550-volt Benjamin wireless clusters with 20-in. tin shades. All three sections of the car house are controlled from a main cabinet which contains a master switch and three individual switches

for each of the three sections. In addition, there is a panel box in each bay. The rest of the building is lighted by 110-volt tungsten lamps, which are controlled by chains or by push-button switches in the different rooms. These lighting fixtures are of handsome and ornamental design, as illustrated. The general illuminating effect is enhanced by the light cypress finish of all of the offices and welfare rooms. The car house proper is heated by steam pipes and the

work or extensive overhauling, nor is any machine, blacksmith or carpenter work done here, all work of the kind stated being executed at the company's central plant, the Carroll Park shops. There is also a large car-cleaning force at the Park Terminal car house in charge of the superintendent of transportation.

The Park Terminal car house represents a study and improvements suggested in the buildings previously erected, and



Park Terminal Car House—One of the Two Division Crew Rooms on the First Floor and a Corridor Between the Offices and Welfare Rooms on the Second Floor

rooms by radiators supplied from a boiler which is located in a basement at the Florence Street corner of the car house.

was built under the general direction of William A. House, president of the United Railways & Electric Company, assisted by T. A. Cross, general manager; J. M. Hood, Jr., chief



Park Terminal Car House—The Bowling Alley, Showing Also the Concrete Beam Construction on the Second Floor and Lighting Scheme

GENERAL

The rolling stock and shops departments have a large force of car repairmen at this point to take care of minor repairs to some 228 cars that are stored or have their lay-over at the Park Terminal car house. No attempt is made to do wheel

engineer; A. T. Clark, superintendent rolling stock and shops, and W. C. Ludwig, superintendent of transportation. The architects were Baldwin & Pennington, and the contractors the J. Henry Miller Company, Inc. Both the architects and the contractors are Baltimore firms.

TESTS WITH A NEW BRAKE SHOE IN PHILADELPHIA

The Philadelphia Rapid Transit Company has been securing some remarkable results with a new type of brake shoe with regard to long shoe life, small scrap, minimum wheel wear and high frictional coefficients in braking. The first operating installation was made in May, 1910, and since that time about 1000 shoes have been placed on both single and double-truck cars with hand or air-brakes. These shoes, which were furnished by the Philadelphia Brake Shoe Company, are of the insert type. The body is made of a fine grade of iron, with a tread containing six cylindrical pockets 1½ in. deep and filled with cement. It has been found that these inserts are also a strong factor in eliminating the screeching common to many brake shoes. The insert composition is not affected by moisture, as was shown by its behavior during six weeks of heavy rain, when the first shoes were placed in service.

The pattern in use up to the present writing has a groove or throat to receive the wheel flange for the full length of the shoe. However, in accordance with a suggestion made by Harry Branson, superintendent of rolling stock and equipment, the new design will have a tread 2¼ in. wide and heel and toe guides only for the flange of the wheel. This change will bring all the braking on the treads, and prevent the pinching or breaking of the wheel flanges. The older shoes have been scrapped at an average weight of 6½ lb., but the new pattern shoe weighing 20 lb. originally will not have to be discarded until it reaches 4 lb.

lb. pressure the insert shoe equipment was stopped in an average length of 204 ft. or 59 ft. less than the cast-iron shoe equipment. Similarly in the test with 75 lb. pressure the insert shoes enabled the car to be stopped in 158 ft. or 22 ft. less than the cast-iron shoe equipment.

THE CLAIM DEPARTMENT

BY F. W. JOHNSON, SUPERINTENDENT BUREAU FOR PREVENTION OF ACCIDENTS, PHILADELPHIA RAPID TRANSIT COMPANY

The near approach of another national convention brings to mind the thought that there are many railway men who for years have been regular attendants at these conventions and at the more frequent gatherings of local organizations of a like nature, but have never really grasped the fact that the efficiency of their respective departments might be immeasurably strengthened by the adoption at home of some of the progressive ideas which have so largely contributed toward making conventions helpful and instructive to those who attend. The opportunity of meeting with other men who oftentimes are confronted by the same or similar problems, and thus of acquiring new ideas and suggestions through the medium of open discussion, cannot but prove of incalculable assistance to railroad men in general. The measure of benefit derivable from such intercourse is limited only by the depth of interest with which one enters into the spirit of such an occasion. If, then, it is a fact that an inter-

COMPARATIVE BRAKING EFFICIENCY TESTS OF INSERT AND CAST-IRON SHOES.

Insert Shoe				Cast-Iron Brake Shoe					
Test Number.	Initial Pressure.	Terminal Pressure.	Length in which stop was effected.	50-LB. PRESSURE.		Initial Pressure.	Terminal Pressure.	Length in which stop was effected.	Average Stop.
				Average Stop.	Test Number.				
1	50-lb.	45-lb.	210 ft.	204-ft.	1	50-lb.	45-lb.	274 ft. 0 in.	263-ft.
2	45-lb.	45-lb.	200 ft.		2	50-lb.	46-lb.	262 ft. 0 in.	
3	50-lb.	45-lb.	190 ft.		3	50-lb.	45-lb.	253 ft. 0 in.	
4	50-lb.	45-lb.	212 ft.		4	50-lb.	45-lb.	282 ft. 6 in.	
5	50-lb.	45-lb.	210 ft.		5	50-lb.	45-lb.	254 ft. 0 in.	
6	50-lb.	45-lb.	202 ft.		6	50-lb.	45-lb.	251 ft. 0 in.	
				75-LB. PRESSURE.					
1	73-lb.	65-lb.	174 ft.	158-ft.	1	75-lb.	70-lb.	167 ft. 6 in.	180-ft.
2	73-lb.	65-lb.	156 ft.		2	75-lb.	70-lb.	181 ft. 6 in.	
3	75-lb.	70-lb.	160 ft.		3	75-lb.	70-lb.	181 ft. 0 in.	
4	75-lb.	68-lb.	151 ft.		4	75-lb.	71-lb.	178 ft. 0 in.	
5	75-lb.	68-lb.	145 ft.		5	75-lb.*	71-lb.	192 ft. 0 in.	
6	75-lb.	65-lb.	161 ft.		6	75-lb.*	70-lb.	178 ft. 0 in.	

*Pressure ran about 77 lb.

As previously noted, the shoes have been placed both on hand and air-brake cars. Not one of the shoes has been removed from the hand-brake cars, and the railway company expects them to give at least a year's service before scrapping. The average life of 115 shoes taken off the air-brake cars was 10,173 miles. The rest of the air-brake shoes, constituting about 70 per cent of the total, are still in service, so that the net average life should be several thousand miles more than the figure given. All of the insert shoes were installed at the Fifteenth Street car house, but the cars thus equipped have been scattered over several other divisions.

The drawback of the ordinary long-life shoe is its excessive abrasion of the wheel. This is particularly true of shoes made of such material as chilled or soft gray iron. However, the tests made with the new insert shoe by the Philadelphia Rapid Transit Company show that it wears the wheels far less than cast-iron, steel-back brake shoes. The exact figures obtained for the action of both shoes on steel wheels were as follows: Insert shoe used 67 days or 8445 miles wore off 3/32 in., insert shoe used 69 days or 8645 miles wore off 1/8 in., cast-iron shoe used seven days or 940 miles wore off 1/8 in., cast-iron shoe used five days or 740 miles wore off 3/32 in. On Sept. 13, 1909, before the extended installation of the insert shoe, the railway company tested it for its frictional coefficient value in comparison with common cast-iron brake shoes. The test runs were made on the Willow Grove line on a 3 per cent downgrade, 690 ft. long. The air-brakes were applied when the cars were running at top speed. The results are shown in the accompanying table, from which it will be noted that with 50

change of views and opinions has proven to be of mutual aid to the officials and heads of departments of the different companies, why should the same principles not apply with equal force and value with respect to lesser lights; that is to say, to the rank and file of the various departments of individual companies?

Consider this proposition for a moment, in conjunction with the claim department, for example, of any one of a number of companies situated in different parts of the country. It would, of course, be impracticable for any particular concern to attempt to have its entire department or even any considerable portion of it present at one of these gatherings. But there would appear to be little, if any, obstacle in the way of placing directly within their grasp much of the spirit and knowledge to be gleaned at the average convention, to the mutual profit and advantage of the department and of the individual. Until the possibilities of an idea such as this are more generally recognized, it would seem as though officials in general, and department heads in particular, are neglecting to take advantage of one of the most promising sources of benefit consequent upon the holding of national gatherings of this nature.

At these conventions are representatives, so to speak, of many thousands of earnest workers, to whom must necessarily be denied the privilege of participating in their proceedings. But it does not follow from this that they are not keenly interested in the various subjects under discussion, nor that they themselves would not be greatly benefited if afforded some means by which they might gain a fairly comprehensive insight

into the more interesting portions of their deliberations. I know of no one department which offers greater opportunities in this direction than does the average claim department. Nor do I know of any particular branch of railroading wherein work of this character could be made more interesting and directly beneficial to a company than in its claim department. Much of the proceedings of some of the associations are of a somewhat involved and technical nature, and would, for this reason, doubtless prove a little heavy to those not especially trained to these ends. With respect to the proceedings of the Claim Agents' Association, however, I venture to say that comparatively few topics are discussed the import of which should not readily be comprehended by virtually every investigator, inspector or adjuster of any practical experience at all. The very nature of claim work is such as necessarily to give to each a practical working knowledge of the scope of the department as a whole. This, together with the absence of perplexing technicalities, aside from the legal aspects of the situation, and involving, as it does, the never-ending study of "many-sided" human nature, offers a splendid field of endeavor to the department head who is genuinely interested in the task of developing his forces to their point of highest efficiency.

Continuing this line of thought, then, why should it not prove entirely feasible for any member company to preserve specimen copies of the various papers discussed at a convention, as well as a digest of the principal arguments advanced pro and con by different speakers, for subsequent consideration by those at home. These, combined with the usual detailed reports of the proceedings published through the columns of the *ELECTRIC RAILWAY JOURNAL*, and with the more voluminous reports annually prepared by the association itself, should provide a splendid working basis for the development of an idea such as this. A very interesting and instructive evening each month, throughout the entire year, could thus be devoted to frank, open discussions, under competent leadership, of topics of the most vital interest to the department. Subjects could be assigned to various members of the department for presentation in the form of papers; these to be followed by general discussion. A Question Box similar to that employed at times by the different associations would aid in clearing up many a doubtful point in the minds of the men.

Addresses by the various officials of the company would go a long way toward injecting a "personal" element into the work of the department. Prominent leaders in other communities doubtless could be prevailed upon to speak before the gatherings, thereby increasing the general interest. Company attorneys could give many a helpful "pointer" concerning important features of the work. Strong, forceful representatives of the company's medical corps should prove decidedly attractive speakers upon certain essential subjects, while the reports of delegates to conventions would aid wonderfully in keeping interest at concert pitch.

Gatherings of this nature would afford the head of the department an excellent opportunity of keeping in close personal touch with every member of his force, in a somewhat different sense from that ordinarily possible in the daily course of business. A little real, human interest in a man, if properly exhibited, will accomplish wonders in the direction of arousing a spirit of loyalty and confidence toward a superior. I care not who the man may be or what his station, if given the encouragement of a pleasant word now and then, he will return to his task with renewed courage, and will labor with ever-increasing zeal for the best interests of his employers. Constant fault-finding or petty misunderstandings, on the other hand, tend to dishearten and to dampen his interest in the work. Especially applicable is this to the subject under consideration. The balance of the scales, figuratively speaking, between a verdict for the defendant or a substantial award for the plaintiff oftentimes depends directly upon the question of whether the investigator to whom the case originally was assigned really had his "heart" in the work. In large departments it frequently happens that the worker in the ranks rarely comes into personal contact with the head. In such cases much necessarily de-

pends upon the subordinate chiefs in their handling of the men. The adoption of regularly scheduled meetings of the entire department, as has been suggested, would afford all an opportunity of becoming better acquainted with their chief, and of more clearly learning his real views and wishes concerning the policies of the department.

But there is still another angle from which to view the advantages of such a course. In thus opening up an avenue through which the members of his department may give full expression to their thoughts, he himself is given the opportunity of studying at close range such available material as may impress him as being worthy of development for positions of increasing responsibility. And this is in itself no small matter in departments of considerable magnitude. In thus encouraging the men to bring forth their best thoughts, and thereby stimulating the advancement of ideas of a novel and original character, many suggestions will in time be uncovered which undoubtedly will prove worthy of adoption. In such instances proper acknowledgment should be accorded to those whose alertness of mind has thus aided materially in strengthening the effectiveness of the department.

In practically every department are to be found men who, if given proper opportunity, plus a little encouragement, would jump at the chance to broaden their knowledge of claim work through the medium of suitable books and pamphlets upon the law of negligence. Few men of any real breadth of view would hesitate to render their co-workers every assistance within their power to a better and clearer understanding of the basic principles of claim work, should such a request be made of them. Unfortunately, however, many men who would otherwise welcome such assistance hesitate, through feelings of delicacy, to take the initiative in this direction, fearing, possibly, that their motives might be misunderstood. In this, as in many other respects, much depends upon the viewpoint. The superior, in looking down the line, may arrive at a certain conclusion. The private in the ranks, on the other hand, in looking up that same line toward his commander-in-chief, and in viewing exactly the same circumstances, oftentimes gets an entirely different impression. Hence the seeming reluctance of some to approach the head of their department, except upon invitation, which invitation at times doubtless seems discouragingly slow in putting in an appearance. Here, then, lies the keynote of the situation. The development of an idea, such as has been suggested, would aid mightily in encouraging the ambitious and would act at the same time as a spur to the indolent. In thus strengthening the personnel of a department the company gains in equal ratio with the individual.

In our close application to business we sometimes lose sight temporarily of the advantages possible through the introduction of a little of the social side of life into our daily affairs. The informal dinners and smokers of the various national associations of late years have provided many thoroughly enjoyable occasions for their members. Similar gatherings, possibly upon a little less pretentious scale, would go far toward insuring the success of work of this character within the confines of a single department.

There is nothing novel about the scheme. In several instances it has been tried with marked success by a number of electric railway companies. Some of our greatest business institutions have for years been zealous exponents of the idea, and I venture to say that its more general adoption throughout street railway circles would result in much good.

William A. House, president of the United Electric Railways & Electric Company, Baltimore, Md., contributed to a recent issue of the *Baltimore Star* an article entitled "How Rapid Transit Has Developed Baltimore." Mr. House gave the extent of the city in acres, and told what has been done by the company toward meeting the expansion of the population of Baltimore and the surrounding territory. Reference was also made by him to the part which the company has played in the upbuilding of the park system of the city.

BENEFIT ASSOCIATIONS IN THE SOUTH

Many of the electric railway companies of the Southern States have instituted sick and death benefit associations for their white employees. The following paragraphs will describe some of these associations with some notes on wages in Mobile:

MOBILE, ALA.

The Mobile Light & Railroad Company benefit association embraces about 75 per cent of the white transportation, shop and office employees of the company. The dues are 50 cents a month and the sick benefit payments \$7 a week in addition to free medical attendance and drugs. The benefit payments begin on the fifth day after illness. The death benefit is \$100. When a member dies the association also furnishes a floral design, two carriages and a delegation. There are emergency assessments of \$1 per member to cover death payments, if such levy is necessary. In general, the fund is maintained by the contributions of the employees, although the company furnished some money when the association was formed. The association is governed directly by the employees. The officers of the company are honorary members only, and have the privilege of the floor, but they cannot vote or receive any benefits. The company has provided meeting rooms for the association on the third floor of its office building, where it has installed hot and cold baths, etc., and also takes care of the heating and lighting. These quarters are provided with a gymnasium, pool and billiard tables, library with current magazines and newspapers, writing materials, etc.

The system of paying platform employees is rather unusual, the men being given bonuses on the first of January and the first of July in addition to the regular wages. The Mobile management has found that this practice tends to prevent the men leaving its service without warning, and the company is able to pay its competent employees the highest possible rate, including the bonus received by the men who perform their duty and stay in the employ of the company, or who resign with an honorable discharge.

The wages per hour in cents and the bonuses are as follows:

	Rate	Bonus	Total
First two years.....	19	1	20
Third year	20½	½	21
Fourth year and after.....	21	1	22

ATLANTA, GA.

The Georgia Railway & Electric Company, Atlanta, Ga., has what is probably the most elaborate employees' welfare equipment in the South in a special structure known as the Transportation Building. The basement of this building contains the bowling alleys. The ground floor is used for offices of the transportation and other departments. The second floor is provided with pool tables, lockers, shower baths and a lunch room where regular meals are provided at 25 cents each, a clothespressing club where the men can have their clothing pressed for 30 cents a month, a cut-rate barber shop, shoe stand and a reading room. The lessee of the restaurant privilege gets free room, light, cooking utensils and dishes from the company, but the latter has full supervision of the price lists and the quality of food served. This scheme has worked out with such satisfaction that quite a number of the employees are regular monthly patrons. The third floor of this building also contains a dormitory where the men can have quarters for 10 cents a night. The top floor has an auditorium where monthly talks on operating subjects are given by the manager and superintendents. Meetings are held three times during the day, namely, at 9:30 a. m., 12:30 p. m. and at 7:30 p. m. Every employee of the transportation department must attend these discussions on courtesy to passengers, means for preventing accidents, reporting car troubles and other operating subjects. The auditorium is also used for religious services on Sundays for those who wish to attend.

Membership in the sick and death benefit association in Atlanta is open to any white employee under 50 who successfully passes the medical examination. Membership is retained only while in the employ of the company. Nine-tenths of the motor-

men and conductors belong to the association, and these classes also constitute about the same proportion of the total membership. The initiation fee is \$1 and the monthly dues 50 cents. The benefit payments are \$1 a day after the first five days of illness, and the usual addition of free medical service and medicines. The death payment is \$100. It has been found that the dues are sufficient to make the organization self-supporting. However, the company made an initial contribution when the association was founded two years ago and the association arranges an annual baseball game for the benefit of its treasury.

The reporting room on the ground floor contains a board on which are posted the names of disciplined men and the number of demerits assigned. The board is also used to post the names and number of merits assigned for careful attention to duties. Among the demerits are the following: Absence from monthly talks, 10, and running too fast over special work, 10.

CHARLOTTE, N. C.

The Charlotte Electric Railway, Light & Power Company has provided its men with a clubroom equipped with hot and cold shower baths, tubs, lockers and other conveniences. The men have a house committee which levies monthly assessments for the purchase of books, pictures, etc. Thus far it has been impossible to organize a benefit association owing to the fact that Charlotte is a mill town and a large part of the men engaged do not remain on the cars very long. For this reason the company endeavors to secure farmers as recruits rather than mill hands. About 80 per cent of its present employees are

RAILWAYS and LIGHT COMPANY'S BENEFIT ASSOCIATION.
SICK REPORT.

Board of Managers:
I hereby report myself sick and under the treatment of

Dr.....

Address.....

Signed.....

Residence.....

Date.....

N. B.—No Sick Benefit will be allowed unless this card is used to notify the Board of Managers.

Member's Report of Illness, Augusta, Ga.

from the rural districts. If a man leaves the company's employ he loses six months' standing in the wage rate if he returns once and a year's rating if he returns and is accepted a second time.

LYNCHBURG, VA.

The splendid quarters provided by the Lynchburg Traction & Light Company for its employees were described and illustrated in the ELECTRIC RAILWAY JOURNAL of March 26, 1910. It may be briefly mentioned here, however, that 90 per cent of this company's employees are members of the sick and death benefit association. The monthly dues are \$1. Sick benefits are paid at the rate of \$1 a day, but are limited to \$90 per annum. The death benefit is \$100. The association has a physician who gives free medical attention to the members and their families. This company now has under consideration a pension system for disabled employees.

CHARLESTON, S. C.

The Charleston Consolidated Railway, Gas & Electric Company organized a relief association about two years ago. It is supported by monthly contributions of 50 cents from the members, an annual contribution of \$500 from the company and miscellaneous donations by directors and others. The dues of 50 cents a month have not been sufficient to meet all the expenses, but the difference has been slight owing to the low death rate which fortunately prevailed. Besides paying a death benefit of \$75 upon the death of an employee, the by-laws also provide a payment of \$50 in case the wife of a member dies and \$25 in case the member loses a child of 12 years or under. About 75 per cent of the employees belong to the association. The report of this society for the year ended Dec. 31, 1909, showed a balance on hand of \$1,614 and receipts of \$2,573, which

include the preceding year's balance of \$1,050 and expenses of \$959. The association rents a hall for its meetings.

The company has recently provided dormitories at its car house for the benefit of late crews and men without families. The charge for this accommodation is 10 cents a night.

Augusta, Ga.

The Augusta-Aiken Railway & Electric Company sick and death benefit association was organized in 1903. Every white employee is required to join. The initiation fee is \$1.50 and the monthly dues are 50 cents. Sick benefit payments are made four days after illness has been reported, and then only after a certificate has been received from the physician made out as shown on the accompanying forms. The sick benefit payments are \$1 a day, but must not exceed \$90 a year. The death benefit is \$75. Extra assessments of 50 cents a month may be made to cover extraordinary expenses, but such assessments must not exceed \$3 a year. The company has been contributing \$300 to \$375 a year to the fund of this association and has also provided the men with a meeting room over the car house where a gymnasium, pool tables, lockers, etc., have been provided. In this association the general manager is ex officio president and chairman of the board of managers. The auditor of the company controls all funds subject to the requisitions of this board. A novel feature of this organization is the provision for a standing committee of eight, known as the committee on grievances. This consists of the general manager and two other officers named by the company and five members elected by the association's board of governors. Any member suspended or discharged by the company has the right to appeal to this committee by filing a complaint in writing within three days after such suspension. The committee chairman and president of the association must thereupon call the committee together after at least one day's notice to the appellant, who must appear in person and may summon witnesses. The company allows any of its employees so summoned to attend without loss of wage time. After hearing evidence and investigating the matter, the committee by secret ballot may either sustain or reverse the decision of the company. In case of a favorable decision, the appellant is immediately reinstated. The company is so well pleased with the association as now organized that it does not consider it worth while to make any alterations.

The company has been successful in getting a high class of countrymen for its car service, and as its policy is to make promotions from the ranks the average length of service of its men is very high.

This is to Certify, That

Mr.

residing at has been

Sick with

and under my professional care and attention from

..... to both inclusive.

During the period Mr.

.....

..... was unable to perform his ordinary daily vocation, and by my advice remained at home

..... M. D.

.....

Augusta, Ga., 190 ..

Physician's Certificate Used in Augusta, Ga.

The Illinois Traction System is building a coal submerging and storage plant at Mackinaw Junction, Ill., midway between Peoria and Bloomington at the intersection of the line from Springfield. An excavation 250 ft. x 100 ft. is being made. The sloping sides of this excavation and the bottom will be covered with concrete so that when the excavation is filled with coal water may be pumped in to protect the fuel from deterioration or spontaneous combustion. Mechanical apparatus for reloading the coal will be provided.

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REPORT ON RAIL CORRUGATION

One of the reports rendered at the meeting of the International Street & Interurban Railway Association at Brussels last week was on rail corrugation. The committee consisted of Mr. Busse, chief engineer of the Grosse Berliner Strassenbahn, and Messrs. Boulvin, general manager of the Compagnie Générale de Railways et d'Electricité, Brussels; Professor Carus-Wilson, consulting engineer, London; Culin, chief engineer of the Strassen-Eisenbahn Gesellschaft; d'Hoop, chief technical director of the Brussels Tramways; Dubs, manager of the Marseilles Railways; Fischer, manager of the Phönix rail mills, Rnhrool; Manage, chief engineer and general manager of the General Omnibus Company, Paris; Noirfalise, general manager of the Liège Railways; Petersen, manager of the Municipal Tramways of Dortmund, and t'Serstevens, secretary of the International Street & Interurban Railway Association.

The report reviews the previous reports on this subject presented at the meetings in Milan in 1906 (see STREET RAILWAY JOURNAL for Sept. 8, 1906, page 367) and in Munich in 1908 (see ELECTRIC RAILWAY JOURNAL for Nov. 7, 1908, page 1323), as well as the special report of Mr. Petersen to members of the association last year (see ELECTRIC RAILWAY JOURNAL for Aug. 28, 1909, page 317).

The report recalled the fact that in the 1908 report a photograph was shown of the tread of a new rail containing notable irregularities caused in the rolling of the rail which it was thought might be the latent cause for the formation of corrugations after the rail was put in service. In this rail there were slight corrugations from 500 to 700 mm apart, due certainly to the process of rolling. Subsequently the Phönix rolling mills modified their process of rolling. In the Petersen report there was further evidence that at least a predisposition to corrugation was given during the manufacture of the rails. Some very interesting tests conducted in Dortmund showed that rails rolled at different times showed different characteristic corrugations.

The Prussian Government Railways also obtained similar results. A line was equipped with rails secured from two mills and laid in the track without definite order. Under traffic the rails from one of these mills showed marked corrugation, while those from the other mill were not affected.

In view of these facts the theory has gained ground during the last few years that the principal cause of rail corrugation lies in the quality of the rail. Nevertheless, a data sheet was sent out to the different members of the association and some of the most interesting replies were presented. These replies, however, did not change the opinion of the committee that corrugation is caused principally by the factors mentioned in the 1908 report and printed below:

- (1) The quality of the rail (recent observations indicate that this is the principal cause of corrugation).
- (2) The use of hard tires.
- (3) Too rapid braking at high speeds.
- (4) Too rapid acceleration.
- (5) Too high speeds.
- (6) Nosing or side oscillation of the car, which can be produced by: (a) rigid mounting of two wheels of the same pair of axles; (b) unequal diameters of the two wheels on the same axle; (c) difference in elevation of the two rails; (d) unequal division of the weight; (e) variations in resilience of the different springs of the same car; (f) play in the journal boxes; (g) irregularity in the gage of the wheels; (h) irregularities in the surfacing of the track; (i) effect of torsion due to the method of motor support; (j) axles out of square; (k) bad construction of the car; (l) too short wheel base.
- (7) Large radius curves.
- (8) Character of track substructure.

Seventy-five replies from companies were received to the data sheet and of these 72 reported corrugation on the tread of the rails. Thirty-eight companies had also noticed corrugation in the trolley wire and eight on the tires of the wheels.

The Amsterdam Tramway Company believes that a consid-

erable portion of the trouble is caused by an angular position of the wheel flanges in the groove of the rail, giving the wheel a constant tendency to climb the groove and resulting in constant grinding and slight vertical vibrations of the wheels. This was shown by attaching on the journal boxes a marker which traced the vertical movement of the wheels. The line drawn contained distinct waves. The side oscillation of the car was also determined by carrying a can of whitewash on the trucks and allowing a small stream to run on the pavement. This showed distinct nosing of the car. There was marked corrugation at the places where the nosing was most pronounced.

The Bordeaux Tramways made some tests which showed a close correspondence between side oscillation and variations in the diameters of wheels on the same axle and between this side oscillation and corrugation. These tests also indicated that the corrugation occurred on the side where the wheels slid on the rails. A test was then made by the company with a car in which the wheels were arranged so as not to skid. On the trailer axles one wheel was mounted loosely on the axle. On the motor axles a differential gear was used somewhat similar to that employed with automobiles. Two cars have been equipped in this way. The Bordeaux company believes that if the theory of the committee is correct, that composition of the rails has an influence on corrugation, this influence is of minor importance, and that it is more necessary to reduce the nosing of the car by reducing the lateral play between wheels and rails and also to reduce or abandon the coning of the wheels. The company also thinks that cars with a short wheel base are

passage of short radius curves at low speeds gyroscopic action has little effect.

The Copenhagen Tramways subjected the head of a corrugated rail to the acid test, but could discover no modification in the structure of the head. It also subjected the head of the rail to the drop test. No material difference in hardness was found between the crests and valleys of the corrugations, but the hardness of the entire head was found to have increased from 200, the hardness of new rails, to 285. This was no doubt due to cold rolling. Corrugation can be reduced by grinding the head of the rail, but this is an expensive process and costs the company 0.012 cent per car mile.

The elevated and underground railway of Berlin tried an experiment of installing on one line of heavy traffic, on which there was considerable braking, sections of the following types of rails: nickel steel rails, Bessemer rails and manganese steel rails. Of these rails the Bessemer showed only a slight corrugation, while the manganese and nickel steel rails were corrugated soon after they were put in service. The report also gives the observations of the corrugations of trolley wire and of wheel tires from different companies.

CONCLUSION

The conclusion of the committee was that the replies this year do not warrant any change from the conclusions as to the cause of corrugation adopted at the 1908 convention and quoted above, except to emphasize the fact already mentioned that predisposition to corrugation may be formed during the rolling of the rail if rolled at too low temperatures. The other causes mentioned undoubtedly favor the production of corrugation, so

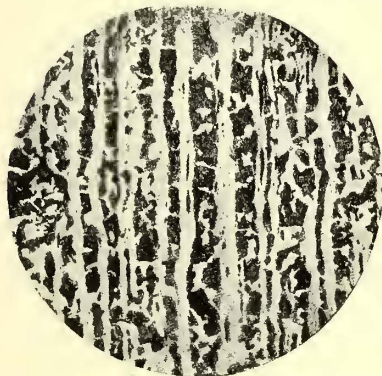


Fig. 1—Structure of Old Uncorrugated Rail



Fig. 2—Structure of Old Corrugated Rail

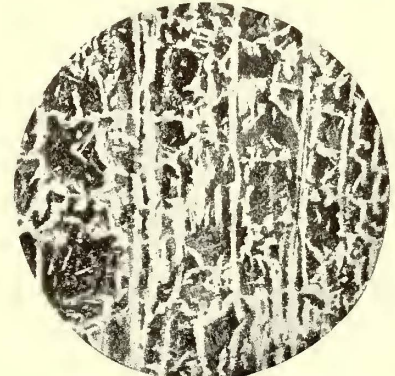


Fig. 3—Unused Rail Indicating Liability to Corrugation

more subject to this oscillation than cars with a long wheel base. It also recommends an elastic track foundation, differing in this respect from other companies.

The Brussels Tramways Company has found that corrugation occurs principally in curves of large radius and in grooved rails. In many cases it disappeared when wooden ties were used instead of concrete foundation. It noted that the appearance of the phenomenon in rails coincided with the abandonment of the Bessemer process for the open-hearth process in most of the rail mills.

The Berlin Tramways found corrugation not only in high carbon rails but also on manganese rails.

The Helsingborg Tramways thought that the cause was due largely to the gyroscopic action of the armature. On account of irregularities in the track the four points of contact of the wheels with the rails are never in the same plane. The wheels tend to follow the irregularities in the track, but they are prevented by other forces, particularly by the gyroscopic force of the armature, which tends to maintain the axle in its original position. The consequence is that the pressure of the wheels on the rails varies and sometimes reaches high maxima which contribute to the production of corrugations. This theory explains the formation of corrugations in curves of large radius run at high speed, the increased wear at the joints where the position of the axle is abruptly changed, and the corrugations on wheel tires. On the other hand, during the

that it is well to eliminate or reduce these subsidiary causes where possible. It is also evident that rails laid on wooden ties, rails held in place on yokes and rails strongly attached to the substructure are less liable to corrugation than rails of long lengths which have been welded or connected with the rigid Melaun joint. It is reasonable to suppose that the tension engendered in these rails will loosen them and thus favor the production of corrugation. It would be very interesting to install a section of track equipped with rail on impregnated ties, strongly attached to the substructure, and also on metal ties and in concrete to determine whether a reduction in corrugation would be secured. The rails ought to be strongly attached so as to reduce so far as possible the vibrations in them. It might also be stated that the German Street & Interurban Railway Association has recently appointed a special committee to investigate this subject in connection with the metallurgist, Dr. J. Puppe. The International Street & Interurban Railway Association is interested in this investigation to the extent of bearing a portion of the expense.

A communication on the subject from Mr. Petersen, the author of the report in the *ELECTRIC RAILWAY JOURNAL* for Aug. 28, 1909, was appended.

MR. PETERSEN'S REPORT.

Mr. Petersen filed a new rail and found what he considered were points of incipient corrugation. These points were marked by a chisel on the lip of the rail, which was then

placed in service and the rail later developed corrugations at these points. This rail carried a large traffic.

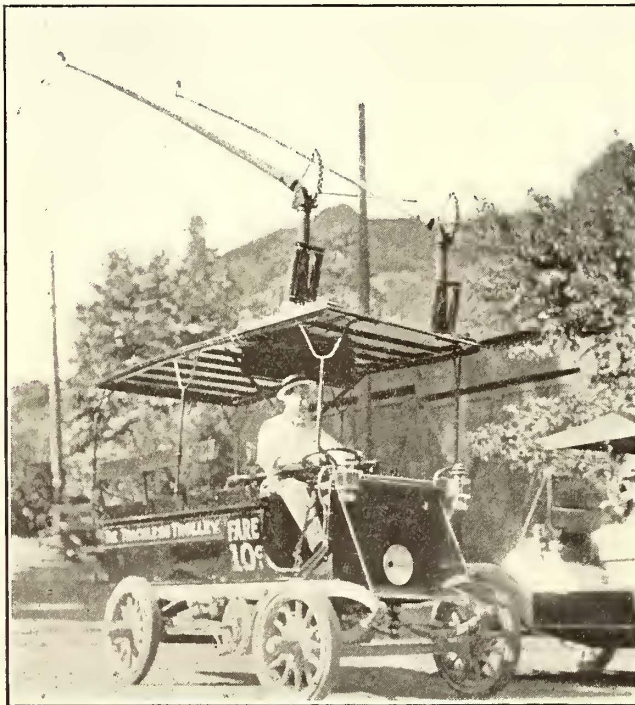
The three micro-photographs on page 435 show respectively the structure of (1) a rail which has been in service several years without showing corrugation; (2) a rail which has been in use and has become corrugated, and (3) a rail which has just been received from the mill. Examination indicates that the first has been rolled at a higher temperature than the other two which showed longitudinal cracks in the fibers of ferrite. These cracks are due to the inclusion of parts of the slag. The chemical analyses of these three rails were as follows:

	Rail 1.	Rail 2.	Rail 3.
C	0.34	0.44	0.47
SI	0.17	0.24	0.04
MN	0.74	0.78	0.96
S	0.075	0.065	0.048
P	0.048	0.051	0.087

It is easy to see that the rail which has been exempt from corrugation presents a fibrous texture much more orderly in its arrangement than that of the other two rails. These views support the claim that the writer has already advanced that the cause of corrugation is the crushing of the head of the rail in the final passes in attempting to roll rails at too low temperatures. These latent defects are developed in service, especially when the rails are laid on a concrete or metallic sub-structure and with a tight gage.

TRACKLESS TROLLEY IN CALIFORNIA

A trackless trolley line has been started near Los Angeles. The line is built in Laurel Canyon near Hollywood, a suburb of Los Angeles, and furnishes communication between the tracks of the Los Angeles Pacific railway at the mouth of the canyon and Bungalown, a new settlement a mile and a half north, near the canyon head. The promotors gained the



California Trackless Trolley

idea of this method from reading about the German systems and have equipped two cars. Each car will seat 16 passengers. Power is obtained from the Los Angeles Pacific Company. One trolley wire is connected to the trolley wire of the railway system. The other trolley wire is used for the return. Under-running wheel trolleys are used and each car is equipped with two electric motors of 15 hp.

Each car is said to have a lateral range of 11 ft., so that it can pass any vehicle on the road without losing contact with the trolley wire. The cars were built in Los Angeles.

AN ODD ACCIDENT LETTER

A large interurban railway system recently received the following odd letter in regard to an accident:
Claim Agent,

..... Railway.

Dear Sir:

I am very glad I heard from you that you like to know about that damage done from getting wed from that water tank all over my clothing that Sunday th 14 of August on the way from to That will be about five dollars.

For it spoiled my Sunday dress and hat and besides I had trouble. And instead going to church. I had to go Some other place in to get myself dry for I was wed all throught I was shaking all over from that cold water.

Kindly let me know about it,

Very Respectfully Yours,

X. Y. Z.

COMPLICATED SPECIAL TRACK WORK IN MILWAUKEE PUBLIC SERVICE BUILDING

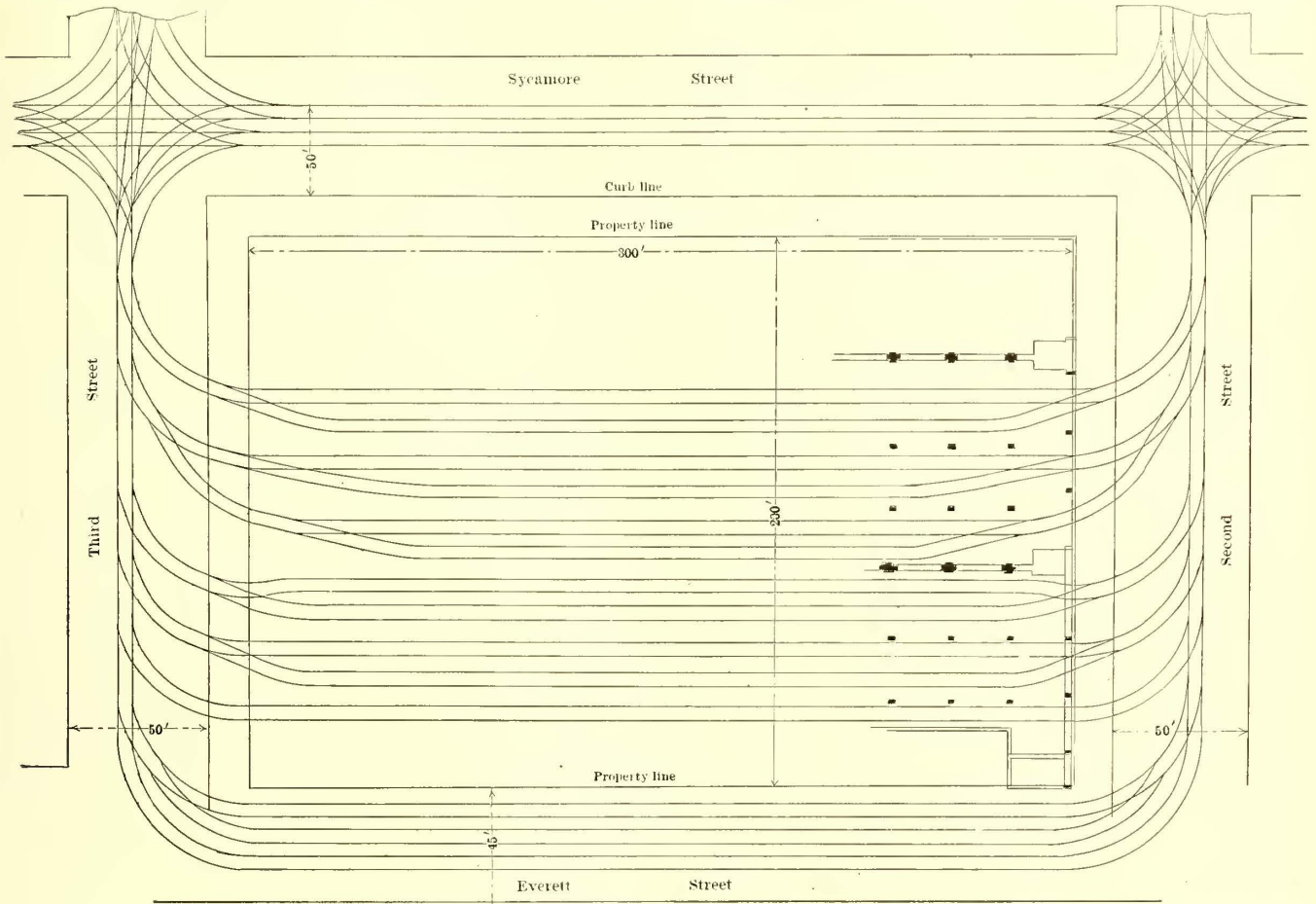
The Milwaukee Electric Railway & Light Company has just finished installing a complicated special track-work layout at its Public Service Building in Milwaukee. This structure covers a ground area of 300 ft. x 200 ft., provides headquarters for all the departments of the railway company, and includes a passenger terminal for all of the company's interurban lines operated out of the city. Practically all of the ground floor of the large building is used as a terminal station and trackage for handling interurban cars. The waiting-room section of the first floor is 44 ft. wide and about 150 ft. long on the Sycamore Street frontage of the Public Service Building. The remainder of the ground floor is occupied largely by 11 lines of track which extend through the length of the building from Third Street to Second Street. Three other through tracks connect with single-track ladders in the streets at either end of the building, by curves of approximately 47-ft. radius, and each ladder leads toward Sycamore Street, on which the Public Service Building faces. A line of double tracks extending along Sycamore Street is intersected at each corner of the building by double tracks from the north and by the ladders from the south, into which the station curves lead. Connecting curves at each corner of the building join the single-ladder track.

The general plan of the special track work at the Public Service Building is shown in the upper cut on page 437 and particular attention is called to the complicated intersections at the two corners on the Sycamore Street side of the building. Here it was necessary to lead out in six directions from one track, and this required a very complicated piece of frog work, making it practically essential that this special track layout be constructed almost entirely of solid cast material. The designing and placing of this special work were done by the maintenance of way department of the Milwaukee Electric Railway & Light Company, under the supervision of the superintendent of construction and maintenance of way of the company. The contract for manufacturing the special track work was carried out by the Falk Company, of Milwaukee. The entire layout conforms to the heavy 95-lb. T-rail section used in Milwaukee and is of the combined "steel-bound" and "solid cast-steel" construction. All throat ways are 1½ in. wide by 1¼ in. deep on straight track and 1¾ in. wide on curves and 11/16 in. deep over risers. The running surfaces of the rails and connecting pieces are designed for wheels with 3-in. treads. The guard rails are made of bar steel 1 in. by 5 in. in section. The gage of the special work layout is standard on straight track and 4 ft. 8¾ in. on curves.

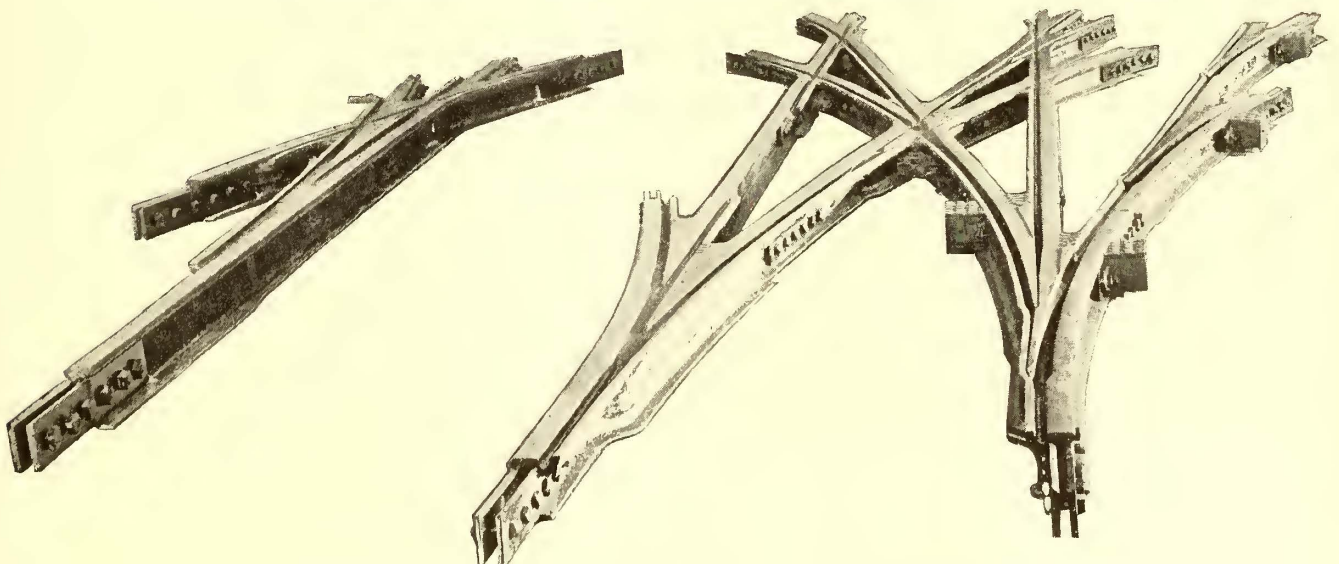
The most exceptional pieces in these special track-work layouts are double-intersecting mates and triple switches and mates, which are used in both the Second and Sycamore Streets and the Third and Sycamore Streets intersections. A view of

this complicated part of the special work as it was assembled on the shop floor is shown. The second engraving shows one of the two combination mates and double frogs. These are each one-piece castings approximately 19 ft. long, each weighing slightly less than one ton. The details of construction of the special track-work layout at both ends of the Public Service Building were carried out by the Falk Company and the de-

rails. The complicated pieces are solid, specially hardened cast steel and all other frogs in the main part of the layout are made of 95-lb. section rail bound together with a heavy mass of open-hearth steel. This form of construction eliminates all angle plates and bolts and thus produces an integral structure. The use of steel for bonding these frogs gives greater strength than ordinary gray iron as commonly used.



Track Plan of Public Service Building, Showing Complicated Intersections at Two Corners



Double Intersecting Mate

Triple Switch and Mate

sign of the three-way switch and mate used in leading six tracks laid in three streets into a single ladder is somewhat similar to a special track-work layout furnished by the Falk Company for the Metropolitan Street Railway Company, of Kansas City, and installed at its Ninth and Washington Streets car house. The Milwaukee work, however, is built of heavier

The installation of these two large intersections is of particular interest because the track-work rests on a foundation of concrete more than 18 in. thick, which forms a monolithic arch from curb to curb. The track surface is paved with No. 1 granite stone blocks to a foot outside of the outer rails and the remainder of the street is paved with asphalt.

NOTES ON TRANSPORTATION AND EXHIBIT ARRANGEMENTS FOR ATLANTIC CITY CONVENTION

H. C. Donecker, secretary of the American Street and Interurban Railway Association, has issued this week Convention Bulletin No. 3 which contains full information about transportation arrangements to and from Atlantic City next month. The special reduced rates which have been granted by the Trunk Line Association, New England Passenger Association, Central Passenger Association and Southeastern Passenger Association were announced in this paper last week, page 402. Those who attend the convention and who come from points outside of the territory covered by these associations should purchase regular tickets to the nearest point in the reduced-rate territory and then buy a round-trip ticket to Atlantic City at the reduced rates. When purchasing tickets it is important to call the attention of the agent to the fact that the purchaser is going to attend the convention, so that the proper form of ticket may be obtained.

All Atlantic City round-trip tickets sold on account of the convention must be validated at the railroad station or at the city ticket office of the line over which return trip is made from Atlantic City before commencing the return trip, otherwise they will not be accepted for return passage. No fee is charged for validation.

Those who intend to go to the convention are urged to communicate at once with the chairman or some member of the local transportation committee appointed by President Shaw to arrange for special trains and Pullman accommodations. The list of members of these committees and the territory assigned to each was printed in the ELECTRIC RAILWAY JOURNAL for Aug. 27, 1910, page 333.

TRAINS FROM NEW YORK OVER THE PENNSYLVANIA RAILROAD

For the accommodation of members of the association and their friends who will attend the convention, the Pennsylvania Railroad announces a special train de luxe (or special parlor cars, if there are not sufficient number to justify a special train) from New York to Atlantic City on Saturday, Oct. 8, leaving New York at 2:55 p. m. Members and others are requested to make application at an early date for Pullman parlor car accommodations thereon. Other trains via the Pennsylvania Railroad leave New York at 9:55 a. m. and 2:55 p. m. week days and 7:55 a. m. Sundays only. The first-class one-way rate between New York and Atlantic City is \$3.25 and six-months' excursion rate is \$5. The parlor car seat rate is 75 cents.

Tickets reading via the Pennsylvania Railroad will be available for stop-off at Philadelphia within limit at pleasure of the holder. Frequent and fast express service is maintained via the Pennsylvania Railroad between Philadelphia and Atlantic City in both directions. Application for reservations on special or regular trains should be made to Colin Studts, district passenger agent, Pennsylvania Railroad, 263 Fifth Avenue, New York, N. Y.

TRAINS FROM NEW YORK OVER THE CENTRAL RAILROAD OF NEW JERSEY

The Central Railroad of New Jersey also announces that it will arrange to provide special Pullman parlor cars on New York-Atlantic City trains leaving New York on Oct. 7 to 10, inclusive, from foot of West Twenty-third Street at 9:50 a. m. daily (12:50 p. m. Saturday), 3:20 p. m. (except Sunday), 2:20 p. m. (Sunday only), and from foot of Liberty Street at 10 a. m. daily, 1 p. m. (Saturday only), 3:40 p. m. (except Sunday), and 2:30 p. m. (Sunday only).

All of the above are through express trains running via Red Bank and Lakewood. If a special number advise of their intention to use any one train, a special train composed exclusively of Pullman parlor cars will be operated for their accommodation. The parlor car fare between New York and Atlantic City is 75 cents in each direction. Passengers by this route have the privilege of stopping over at Lakewood and

also of returning via Philadelphia. Applications for reservations should be made to W. C. Hope, general passenger agent, Central Railroad of New Jersey, 143 Liberty Street, New York, N. Y.

TRAIN FROM BOSTON

The committee on transportation for the New England States, which is composed of Charles H. Hill, chairman; Calvert Townley, H. C. Page, L. S. Storrs and Robert S. Goff, has addressed a letter to all member companies in that territory urging a large attendance of officers at the convention. Another letter has been addressed to all associate members in New England in which are pointed out the advantages of attendance at the convention. Accompanying each letter is the following announcement of special parlor car arrangements which will be made if a sufficiently large party is secured to warrant this:

"If sufficient number desire it arrangements will be made to secure special through parlor cars from Boston to Atlantic City. The cars would be attached to the 'Colonial Express,' leaving Boston, Monday, Oct. 10, at 8 a. m., and arriving at Atlantic City about 6:10 p. m. The cost of transportation, parlor car accommodations and dinner would be on the same basis as traveling alone on regular trains. If you care to join in making up such a party kindly let us know at your earliest convenience, but not later than Sept. 28. State the number of chair reservations desired. You will be informed on or before Oct. 1 regarding the success and practicability of carrying out the above arrangements. Address your communications to C. H. Hile chairman, transportation committee, 101 Milk Street, Boston, Mass. The suggestion has also been made that it might be desirable to provide special cars for Sunday. Will you kindly indicate your choice as between these two days? That is, advise whether you would prefer to leave on Sunday or Monday."

ADVANCE COPIES OF COMMITTEE REPORTS

Advance copies have been printed of nearly all of the committee reports which will be presented at the meetings of the Accountants' Association, the Engineering Association and the Transportation and Traffic Association. These reports will be mailed this week to all member companies and associate members so that all will have ample time to study them thoroughly before going to Atlantic City.

SPACE NUMBERS OF EXHIBITORS

In the ELECTRIC RAILWAY JOURNAL of Sept. 10, 1910, page 410, a list was printed of the names of manufacturing companies which had applied for exhibit space at the convention up to Sept. 2, 1910. The following list gives the space numbers which have been assigned to each exhibitor, and by referring to the accompanying plan of the pier the location of any exhibit can be found readily. The track exhibits this year will be placed on a temporary track about 250 ft. long parallel to the boardwalk and extending north from the pier. The boardwalk is soon to be widened at this point and additional reinforced concrete piers and extension girders have already been placed. A track will be built on these girders for the accommodation of full-size car body and truck exhibits. It is expected that several cars will be shown.

BUILDING NO. 1.

Space Nos.	Exhibitors.
112 to 125	General Electric Co., Schenectady, N. Y.
126 to 131	Galena-Signal Oil Co., Franklin, Pa.
208 to 216-304	William Wharton, Jr., & Co., Philadelphia, Pa.
209 to 217	The Pennsylvania Steel Co., Philadelphia, Pa.
305-415-417	
218 to 228	Allis-Chalmers Co., Milwaukee, Wis.
306 to 318	
404 to 430	Westinghouse Companies, East Pittsburgh, Pa.
219 to 229	
307 to 319	ELECTRIC RAILWAY JOURNAL, New York City.
419 to 427	
454 to 556	Dearborn Drug & Chemical Works, Chicago, Ill.
401-405	Kenfield-Fairchild Publishing Co., Chicago, Ill.
403	The J. G. Brill Co., Philadelphia, Pa.
1/2 of 407	American Railway Guide Co., Chicago, Ill.
409-411	R. D. Nuttall Co., Pittsburgh, Pa.
433	Hunter Illuminated Car Sign Co., New York City.
420 to 560	Emery Pneumatic Lubricator Co., St. Louis, Mo.
434	Badger Fire Extinguisher Co., Boston, Mass.
435	
436	

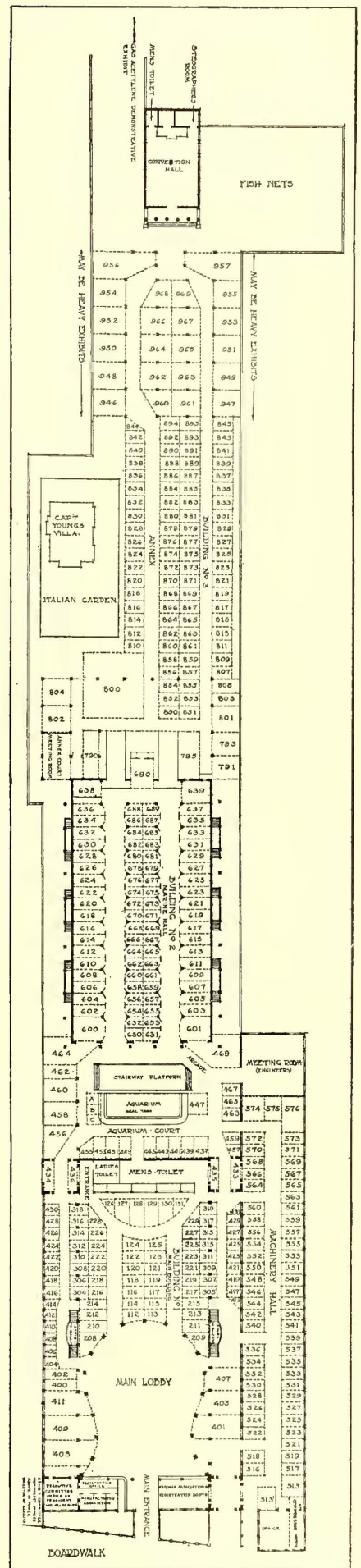
Space Nos.	Exhibitors.
437 to 441	Under-Feed Stoker Co., Chicago.
447	Walker & Bennet Manufacturing Co., New York City.
453	G. C. Reiter, Canton, Ohio.
456	Electric Railway Equipment Co., Cincinnati, Ohio.
457-459	Buckeye Engine Co., Salem, Ohio.
463 to 467	National Carbon Co., Cleveland, Ohio.
464	Rail Joint Co., New York City.
469	Columbia Machine Works & Malleable Iron Co., Brooklyn, N. Y.

Space Nos.	Exhibitors.
515-517	Chicago Pneumatic Tool Co., Chicago, Ill.
516-518	Joseph Dixon Crucible Co., Jersey City, N. J.
519	Warren Webster & Co., Camden, N. J.
521	H. B. Underwood & Co., Philadelphia, Pa.
522 to 526	Electric Omnibus & Truck Co., New York City.
523	Edison Storage Battery Co., Orange, N. J.
525	Economy Oil Cup Co., Augusta, Ga.
527 to 535	Taylor Electric Truck Co., Troy, N. Y.
528-530	Railway Roller Bearing Co., Syracuse, N. Y.
532 to 536	Turner Automatic Switch Co., Ft. Smith, Ark.
537	Black Diamond Boring Machine Co., Monongahela, Pa.
539 to 545	National Brake & Electric Co., Milwaukee, Wis.
542-544	Yale & Towne Manufacturing Co., New York City.
546	Selah & Hoopes, Philadelphia, Pa.
547 to 551	U. S. Electric Signal Co., West Newton, Mass.
552	Philadelphia Electrical & Manufacturing Co., Philadelphia, Pa.
553	Duplex Metals Co., New York City.
555-557	Whitmore Manufacturing Co., Cleveland, Ohio.
559 to 563	Standard Steel Works Co., Philadelphia, Pa.
564-566	Jones & Laughlin Steel Co., Pittsburgh, Pa.
565	Niles Car & Manufacturing Co., Cleveland, Ohio.
567	Baldwin Loco. Works, Philadelphia.
568	Nachod Signal Co., Philadelphia.
570-572	Harold P. Brown, New York City.
571 to 573	Hess - Bright Manufacturing Co., Philadelphia, Pa.
574	W. T. Van Dorn Co., Chicago, Ill.
575-576	Cleveland Frog & Crossing Co., Cleveland, Ohio.

Space Nos.	Exhibitors.
600 to 604	Ohmer Fare Register Co., Dayton, Ohio.
601-603	Ohio Brass Co., Mansfield, Ohio.
605	The Presto Co., New York City.
607	Elliott Co., Pittsburgh, Pa.
608	Trolley Supply Co., Canton, Ohio.
609	U. S. Metal & Manufacturing Co., New York City.
610	J. H. Williams & Co., Brooklyn, N. Y.
611-613	International Register Co., Chicago, Ill.
612	Gold Car Heating & Lighting Co., New York City.
614-616	John A. Rocbling's Sons Co., Trenton, N. J.
615	Adams-Bagnall Electric Co., Cleveland, Ohio.
618-620	Speer Carbon Co., St. Marys, Pa.
619	Gould Storage Battery Co., New York City.
621	Automatic Ventilator Co., New York City.
622	Recording Register & Fare Box Co., New Haven, Conn.
623-625	Goldschmidt Thermit Co., New York City.
624	A. & J. M. Anderson Manufacturing Co., Boston, Mass.
626-628	Southern Exchange Co., New York City.
627-629	Consolidated Car Fender Co., Providence, R. I.
631	Sherwin-Williams Co., Cleveland, Ohio.
633	D & W Fuse Co., Providence, R. I.
635	Massachusetts Chemical Co., Boston, Mass.
636-638	H. W. Johns-Manville Co., New York City.
637-639	Western Electric Co., New York City.
650-652	National Lock Washer Co., Newark, N. J.
654-656	National Brake Co., Buffalo, N. Y.
657	Cooper Heater Co., Carlisle, Pa.
658-660	New York Switch & Crossing Co., Hoboken, N. J.
659-661	Coin Counting Machine Co., New York City.
662 to 665	Ford & Johnson Co., Michigan City, Ind.
666-668	Electric Storage Battery Co., Philadelphia, Pa.
667	Indianapolis Brass Co., Indianapolis, Ind.
669	Eclipse Railway Supply Co., Cleveland, Ohio.
670	American General Engineering Co., New York City.

Space Nos.	Exhibitors.
670	Eureka Tempered Copper Works, North East, Pa.
671	Bayonet Trolley Harp Co., Springfield, Ohio.
672-673	Peter Smith Heater Co., Detroit, Mich.
674	Grip Nut Co., New York City.
675	Indian Refining Co., Cincinnati, Ohio.
676	Laconda Manufacturing Co., Springfield, Ohio.
677	W. J. Jeandron, New York City.
678	Poole Brothers Co., Chicago, Ill.
679	W. P. McVicker & Co., New York City.
680-681	Standard Motor Truck Co., Pittsburgh, Pa.
682	Adams & Westlake Co., Chicago, Ill.
683	Home Rubber Co., Trenton, N. J.
684	Atlanta Car Wheel Co., Atlanta, Ga.
688-689	Standard Underground Cable Co., Pittsburgh, Pa.
690	Carbolineum Wood Preserving Co., New York City.

Space Nos.	Exhibitors.
706	American Rolling Mill Co., Middletown, Ohio.
791 to 795	American Hoist & Derrick Co., St. Paul, Minn.
800	Electric Service Supplies Co., Philadelphia, Pa.
801	American Brake Shoe & Foundry Co., Mahwah, N. J.
803	T. H. Symington Co., Baltimore, Md.
805	The O M S Co., Plainfield, N. J.
807 to 811	McConway & Torley Co., Pittsburgh, Pa.
810-812	Sterling Varnish Co., Pittsburgh, Pa.
813	Dossert & Co., Inc., New York City.
814	Atlas Railway Supply Co., Chicago, Ill.
815	Acme Indicator Co., Cleveland, Ohio.
816	Garlock Packing Co., Palmyra, N. Y.
817	Pyrene Manufacturing Co., New York City.
818	Wheel Truing Brake Shoe Co., Detroit, Mich.
819-821	Watson-Stillman Co., New York City.
820	Star Brass Works, Kalamazoo, Mich.
822	Standard Paint Co., New York City.
823-825	Coleman Fare Box Co., Buffalo, N. Y.
824	Transportation Equipment Co., New York City.
826	American Railway Supply Co., New York City.
827	Rooke Automatic Register Co., Providence, R. I.
828-830	Standard Coupler Co., New York City.
829	Anglo-American Varnish Co., Newark, N. J.
831	Ramapo Iron Works, Iiilburn, N. Y.
832-834	The O. M. Edwards Co., Syracuse, N. Y.
833	American Mason Safety Tread Co., Boston, Mass.
835	Egry Register Co., Dayton, Ohio.
836	West Disinfecting Co., New York City.
837	Archbold-Brady Co., Syracuse, N. Y.
838	National Lead Co., New York City.
839	Smith-Premier Typewriter Co., Syracuse, N. Y.
840	Berry Brothers, Ltd., Detroit, Mich.
842-844	National Car Advertising Co., Chicago, Ill.
843-845	Stromberg-Carlson Telephone Manufacturing Co., Rochester, N. Y.
850 to 859	Lorain Steel Co., Johnstown, Pa.
860 to 871	Carnegie Steel Co., Pittsburgh, Pa.
872 to 875	American Steel & Wire Co., Chicago, Ill.
876 to 879	Consolidated Car Heating Co., Albany, N. Y.
878	Tool Steel Gear & Pinion Co., Cincinnati, Ohio.
880-881	Whipple Supply Co., New York City.
882	Universal Safety Tread Co., Boston, Mass.
883-885	Curtain Supply Co., Chicago, Ill.
884 to 887	Hale & Kilburn Manufacturing Co., Philadelphia, Pa.
890	Lord Manufacturing Co., New York City.
891	Heany Fire-Proof Wire Co., New York City.
892-894	Electric Railway Improvement Co., Cleveland, Ohio.
893-895	Chicago Varnish Co., Chicago, Ill.
948	Flood & Conklin Co., Newark, N. J.
949	Buda Co., Chicago, Ill.
954	Forsyth Brothers Co., Chicago, Ill.
957	Titan Steel Casting Co., Newark, N. J.
956	Pantasote Co., New York City.
960	Wallace Supply Co., New York City.
961	Globe Ticket Co., Philadelphia, Pa.
962	Heywood Brothers & Wakefield Co., Wakefield, Mass.
968	Duff Mfg. Co., Pittsburgh, Pa.
969	Wonham, Sanger & Bates, New York City.
Track	Barber Car Co., York, Pa.
Track	Pay-As-You-Enter Car Corporation, New York City.
Track	The J. G. Brill Co., Philadelphia, Pa.
Track	Jewett Car Co., Newark, Ohio.



Plan of Exhibit Hall

COLUMBUS STRIKE

There have been several important happenings during the week in connection with the strike of the employees of the Columbus Railway & Light Company, Columbus, Ohio. Governor Harmon refused to call a special session of the General Assembly of Ohio at the behest of Mayor Marshall to deal with the strike situation, the hearing on the temporary order restraining the trainmen of the company from interfering with train operation was postponed until Sept. 17, 1910, and Col. Theodore Roosevelt delivered an address in Columbus in which he referred in no uncertain terms to some of the phases of the present labor trouble.

Mayor Marshall's request to the Governor for a special session of the General Assembly was dated Sept. 12, 1910. The Mayor asked for the special session to provide for legal compulsory arbitration, to define distinctly the relations between public-service corporations and their employees and the obligations of one to the other, and to prevent overcapitalization of public-service corporations. In his reply to the Mayor the Governor said:

"Certainly in view of the expense to which the state has already been put to maintain order in Columbus you are the last who should suggest putting it to the further great expense of a special session.

"You assume that I have only to call the Legislature and tell them what to do. At both sessions the Republican majority, which controls both branches, took special pains to treat my recommendations with little or no respect.

"Now, with the presiding officer of each house and many of the members candidates at the pending election, you seem to think this majority would come to me and eat out of my hand, as it were.

"Under the circumstances I certainly would not be justified in calling a special session even if I were prepared to recommend the various measures you mention. I am bound in frankness to say that your sending such a letter at this time and promptly giving it to the press suggests a desire to make up by fertility in recommending new laws for the lack of efficiency in enforcing existing laws with which you are charged by the public in general."

On Sept. 13, 1910, the Mayor replied to the Governor. He disclaimed responsibility for the expense involved in keeping troops in Columbus, saying that in his judgment it were better to have the Legislature enact laws which would remedy bad economic conditions, even though the special session would be expensive, than to maintain troops to quell disorders due to the economic conditions that prevail.

The hearing on the question of continuing in force the temporary order of E. B. Dillon, judge of the Common Pleas Court at Columbus, restraining the striking trainmen in some measure from interfering with the operation of cars was set for Sept. 10, 1910. The organization which is maintained among the employees of the company is not incorporated, and for this reason a cross bill was filed with the court advanced in behalf of individual members of the men's organization. This cross bill asks dismissal of the injunction suit by the company, appointment of a receiver to take over property of the underlying companies and nullification of the company's leases. By agreement, the injunction granted by Judge Dillon was continued until Sept. 17, 1910.

Col. Roosevelt spoke in Goodale Park, Columbus, on the afternoon of Sept. 10, 1910, on the subject of "Law and Order," and it is said that 30,000 people heard him. His remarks were confined almost wholly to conditions in Columbus. Among other things Col. Roosevelt said:

"The first essential to the establishment of justice is the establishment of law and order. Law must be maintained that disorder be suppressed, and woe to the man, public official or private citizen, who fails to realize this fact. Especially should we abhor and repudiate the conduct of any public official who, for any reason, fails in his duty in this respect.

"If it be true—I do not know that it is—that the attorneys

for the strikers habitually appear for every miscreant arrested for assaulting the cars, and for assaulting other people, and furnish him bail bonds, then in their own interest and for their own good name let the wage-workers get rid of the attorneys."

On Sept. 7, 1910, the police arrested W. W. Haines, a former employee of the railway company, and J. R. Ray on the charge of being connected with attempts to dynamite cars of the company. Ray was later released, but Haines was held. Haines was discharged on Sept. 8, 1910, however, as the attorneys for the men on strike threatened to bring habeas corpus proceedings to secure his release. With this action Mayor Marshall established a censorship over the news at the police department on the ground that publicity was hindering all officials in the investigation of the riots and preventing the capture of those guilty by keeping them informed of all the movements made to arrest them.

J. A. Jeffrey, of the Jeffrey Manufacturing Company, picked up a stick of dynamite in front of the wholesale dry-goods house of the Sheldon Dry Goods Company on Sept. 7, 1910, and turned it over to Robert E. Sheldon, who is president of both this company and the Columbus Railway & Light Company.

On Sept. 7, 1910, a number of men are reported to have applied for positions as motormen and conductors as a result of the advertising which the company has been doing. Manager Stewart stated that positions with the company will all be filled within a short time. The old men who desire to return to work will be taken, however, as long as there is room for them.

The 10 labor leaders chosen to act for the strikers held a meeting on Sept. 6 and decided not to ask a sympathetic strike of other trades on account of lack of support of the organizations among men in other lines of work. This committee was to meet again on Sept. 13, 1910, for further action.

The Civil Service Commission has sustained the verdict of Safety Director Edward McCune in dismissing from the service the 33 patrolmen who refused to obey the order of the Mayor to serve on the cars. The commission says that a state of riot existed at the time; that the director of safety and the Mayor had joint control, and that the Mayor had authority to issue such orders as he deemed expedient.

The strikers sent agents through the state to appeal to the people not to ride on the cars during state fair week, but the company had all the business it could conveniently handle. Governor Harmon had the state troops patrol the tracks leading to the fair grounds.

In the cases of two new employees of the company Police Judge Osborne decided on Sept. 8, 1910, that men engaged in hazardous occupations of a lawful nature have a right to carry weapons to protect themselves. About 20 men employed by the company had been arrested for carrying weapons, but all were discharged as a result of this decision.

Some of the troops have been relieved from duty, but it is said to be the intention of the Governor to retain a sufficient number to insure order until the municipal authorities feel that they have the situation fully in hand.

The Maryland Public Service Commission has taken up the complaint of Marion G. Dinsmore and others against the fares charged by the United Railways & Electric Company, Baltimore, Md., for transporting passengers from Howard and Franklin Streets, Baltimore, Md., to Sparrows Point. At the original hearing it was agreed, in order to give the commission a clear insight into the matter, that the complainants should submit to the officials of the company a list of interrogatories touching upon matters relative to which specific information is desired. This was done, but it appeared that neither the questions nor the answers thereto were specific enough. Hence the case has been postponed until amended and more specific interrogatories can be filed and the company has had time to answer.

COMMUNICATION

THE ARNOLD PITTSBURGH REPORT

CHICAGO, Sept. 3, 1910.

TO THE EDITORS:

I notice that in a letter published in your issue of Aug. 20 Judge J. H. Reed, vice-president and general counsel of the Pittsburgh Railways Company, takes exception to one of the statements I recently made in a report to Mayor Magee regarding the property of the Pittsburgh Railways Company. He directs attention to the variation in the car-mile unit as a standard of service rendered, owing to the fact that in most cities the replacement of smaller with larger cars results in a greatly increased seating capacity and, I think without sufficient consideration, attempts to discredit the conclusions drawn by me, especially the one relating to service rendered by the Pittsburgh Railways Company.

While I have always recognized that the use of the car-mile unit has its limitations, it is an unfortunate fact that no other unit is usually available, especially for comparing service over a long period, and had the Pittsburgh Railways Company complied with my request to furnish full information regarding its equipment for the period that my report covers, I might have taken into consideration the exact seating capacity furnished by the Railways Company during the different periods. This information, however, was not furnished and it was necessary for me to secure it largely from the United States census reports and the Red Book published by your JOURNAL. This information was probably originally furnished to the above authorities by the Railways company and is therefore presumably correct.

I have had the matter again carefully checked, and do not at all agree with Judge Reed's conclusions that "as all winter car bodies" have increased 20 per cent, my measure of service, as expressed in passengers per car mile, must be modified in proportion, or that the tables, curves, etc., should be corrected.

It should be recognized that the analysis in my report is based entirely upon all-the-year-around figures and not on any particular winter schedule or on an "all winter car bodies basis," as is Judge Reed's, consequently all cars must be taken into consideration in order to determine the average increase in seating capacity. The following data show that the open equipment always constituted a large proportion of the total and that the seating capacity of the open cars is about one-half of the total seating capacity, notwithstanding the fact that many new cars were purchased within recent years. This is of course due to the fact the open single-truck cars have about the same seating capacity as the majority of the closed double-truck cars, and nearly two-thirds more seats than the closed single-truck cars. Taking all of this into consideration, the average number of seats per car has increased but 5 per cent from 1902 to 1909, as evidenced by the following table:

TABLE I.

	Per cent of total—		
	1902.	1908.	1909.
Cars:			
Closed	56.5	62.4	62.5
Open	43.5	37.6	37.5
Seats:			
Closed	44.0	51.7	56.0
Open	56.0	48.5	46.0
		—	
		Seats per car—	
	1902.	1908.	1909.
Cars:			
Closed	27.3	*31.5	*32.2
Open	†45.5	†45.5	45.5
Totals.....	35.2	36.9	37.0

NOTE.—* Means prorated from Judge Reed's statements. † Means assumed constant 1902 to 1910. (No cognizance is taken of 18 horse cars, given in the Red Book, as owned by the company in 1902.)

Now, computing the several ratios involving service on the basis shown by this table, we have Table II.

In the final lines of Table II I have noted seat miles per passenger, using Judge Reed's own figures, based upon the 20 per cent increase.

From Table II it will be seen that the average number of seat miles furnished per passenger riding over this distance

decreased from 64.8 in 1902 to 55.2 in 1908, but rose to 58.2 in 1909. The original figures to which Judge Reed took exception are as follows: Passengers per car mile, 5.43, 6.60 and 6.28, respectively. These two ratios bear inverse relations but seem to me to prove the correctness of my deduction.

TABLE II.

	1902.	1908.	1909.
Passengers per car-mile.....	5.43	6.60	6.28
Earnings per car-mile.....	24.08	28.49	27.42
Expenses per car-mile.....	12.21	15.99	15.91
Car-miles per passenger.....	0.184	0.149	0.157
Car-miles per capita.....	10.35	9.60	9.70
Car-miles per mile of track.....	80,800	59,200	61,300
Seat miles per mile of track.....	2,205,000	1,862,000	1,982,000
Seat miles per passenger.....	64.8	55.2	58.2
Seat miles per passenger using winter schedule (figures from ELECTRIC RAILWAY JOURNAL, Aug. 20).....	50.25	47.05	50.5

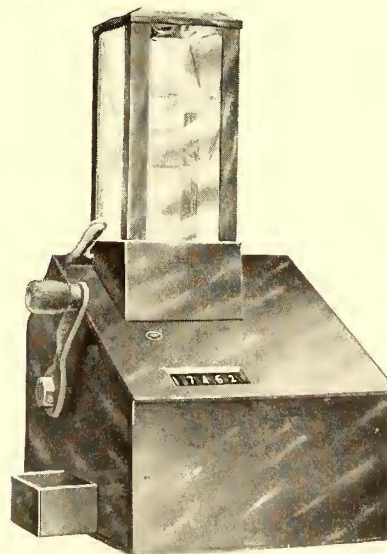
In view of these figures I do not, as yet, find reason to alter the statement in my report to which Judge Reed excepts, reading, "According to this record [total passengers per revenue car mile], the standard of service furnished decreased from 1902 to 1908, with a considerable increase in 1909."

Personally I regret that a discussion of this nature is at all necessary, but it only emphasizes the desirability of the general adoption by street railway companies of more suitable standards whereby results of their operation may be intelligently analyzed. Such standards have long since been suggested by the railway associations, but in many cases their acceptance has been tardy and half-hearted, even under protest, when required by supervisory commissions. I do not see that any harm can come from an intelligent analysis of results, and especially from a comparison of similar systems, always provided that proper allowances are made for conditions purely local in character.

BION J. ARNOLD.

TWO NEW FARE BOXES

The Recording Register & Fare Box Company, New Haven, Conn., is now offering two new types of registering fare boxes intended especially for prepayment cars. The No. 5 box illustrated has a glass receptacle for receiving the fares. The coins drop onto a plate at the bottom of the receptacle, and after inspection by the conductor his pressure on a lever drops them into the machine. By operating a crank on the side of the fare box the conductor runs the coins through the mechanism, which properly registers them and drops them into a till. The operation of the crank will not affect the register unless there are coins actually present in the machine. The register runs to 100,000 and registers once for each nickel, twice for each dime and once for each five pennies. The conductor is required to



Fare Box for Prepayment Cars

remove all the money from the till at the end of each trip, and may remove it at any time should he desire it for making change. The No. 6 registering fare box is designed for both cash and tickets, mechanically separates the coins from the tickets, properly registering them and dropping them into the conductor's till, but retaining the tickets.

Mutilated or thin coins have heretofore been a serious obstruction to the successful use of coin-operated machines, but

it is stated that this trouble has been completely obviated in these fare boxes. Bent or damaged coins will pass safely through the machine and safety devices make it impossible to damage or break the mechanism by the use of slugs or other foreign substances. Another great advantage is that one or more fares may be deposited at a time, making it possible for a passenger to pay several fares without being confined to the slower operation of depositing them singly.

The registers used in these boxes are full geared. The figures are very plain, being 5/16 in. long, while the entire mechanism has been made strong, durable and simple. The manufacturer announces that the new machines will be on exhibition at the Atlantic City convention of the American Street & Interurban Railway Association.

NEW CARS FOR NORTHERN TEXAS TRACTION COMPANY

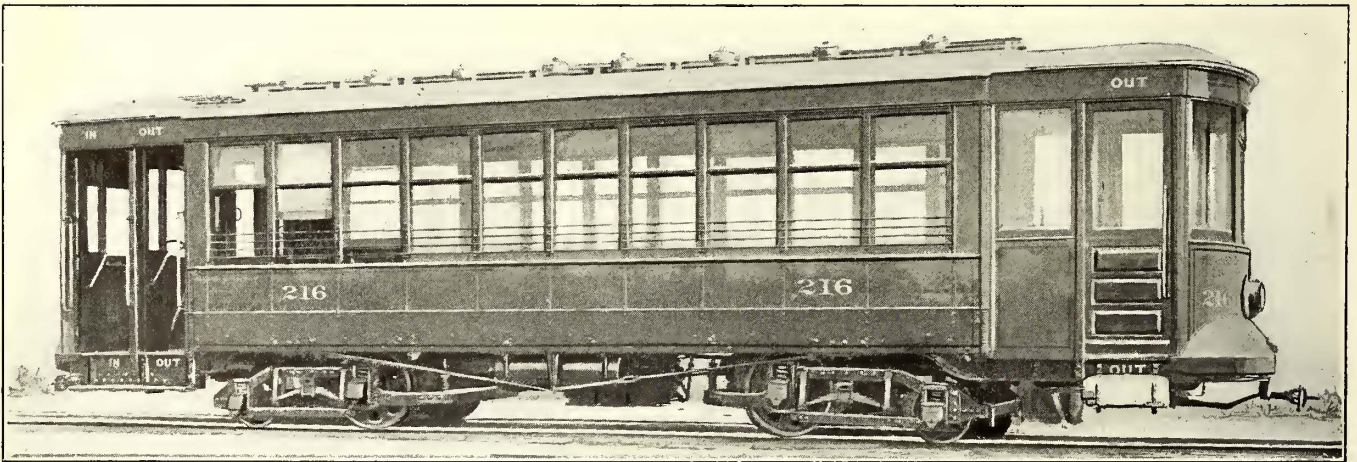
The American Car Company, St. Louis, has recently built for the Northern Texas Traction Company, Fort Worth, Tex., 15 double-truck, double-end motor cars with prepayment platforms and turtle-back roofs. The principal dimensions of the cars are: Length of body, 26 ft.; length over bumpers, 40 ft. 6 in.; width over all, 8 ft. 9 in.; clear height inside, 8 ft. Steel plates of No. 14 gage are used for the side panels and the yellow pine side sills are reinforced with 3/16-in. x 15-in. steel plate bolted on the outside. Both platforms are 6 ft. 6 in. long and are entirely enclosed with sheet steel and glass panels and folding and sliding doors. On the right hand side of the platform the wide opening is divided by a post into exit and entrance passageways which are closed with folding doors. An iron pipe stanchion in the center of the platform supports the inner end of a pipe partition rail, which on the front platform is swung around to the left of the motorman and fitted into a

There are windows on each side of the car. The upper sashes are stationary and the lower sashes are arranged to rise 30 in. Sixteen reversible wooden-slat cross seats furnished by Heywood Brothers & Wakefield and four wooden-slat corner seats provide a seating capacity for 40 passengers.



Interior of Car with Turtle-Back Roof

The interior trim of the cars is solid mahogany. The special equipment includes Sterling-Meaker Giant hand brakes, Brill drawbars and angle-iron buffers, Wall gongs, Hunter illuminated signs, Forsythe ring curtain fixtures and Pantasote curtain material, International double registers, Crouse-Hinds arc headlights, Westinghouse air brakes, Sherwin-Williams chrome-



Semi-Steel Car with Turtle-Back Roof for Northern Texas Traction Company

socket on the inside of the dasher. Double sliding doors which move together close the 48-in. central opening in the end bulkhead of the car body, but there is no central stanchion to separate incoming and outgoing streams of passengers. The sashes in these bulkhead doors are arranged to rise into the upper panel. The platform steps below both the folding and sliding doors are arranged to fold up against the platform knees. The long step is folded up by pulling down an inside door guard rod which is connected with suitable rods and bell cranks to the step hinges. The short step under the sliding door operates automatically with the movement of the door.

The turtle-back roof is framed with 3/4-in. x 1 1/2-in. oak carlins bent to the proper contour and strengthened with 5/16-in. x 1 1/4-in. concealed steel carlins over each side post. On top of the carlins is a layer of 3/8-in. poplar ceiling on which the No. 8 cotton duck roofing is bedded in white lead. Sixteen exhaust ventilators 6 in. in diameter with inside registers are inserted in the roof in two rows as close as practicable to the trolley board.

yellow body paint, Berry Brothers' varnish and Universal safety step treads. The cars are mounted on Brill 39-E. single-motor trucks and are equipped with two General Electric-219 motors.

Construction work was recently begun on the first of two 25,000-kw hydroelectric generating stations on the tributaries to the Doce River, in Brazil, which will furnish energy for an electric railway, 400 miles in length, between Victoria and Itabira, in the State of Minas Geras. The region penetrated by the new electric railway is a mining country producing large quantities of iron ore, the transportation of which to the coast will be the principal business of the new road. In building the road about 250 miles of existing narrow-gage steam roadbed will be utilized, the track being converted to standard gage. The railway is being constructed by British interests which own the iron-ore workings in the territory which the road will serve and the electrical equipment will be of English manufacture.

ELECTRIC RAILWAY LEGAL DECISIONS

LIABILITY FOR NEGLIGENCE.

California.—Safety Bar—Injuries—Negligence.

A street car company is not required, as a matter of law, either by a statute or rule of law, to keep a safety bar before the entrance of open street cars.

The distance between the projecting steps of passing street cars on defendant's double tracks was only 3 in., and the distance between the bodies of the cars was 18 in., but the handlebars of cars on either track would extend $2\frac{1}{2}$ in. beyond that distance. There was no safety bar across the entrance of the car on which plaintiff was riding and injured by being struck by a handlebar on another car, and plaintiff was riding on the step of the entrance because of the crowded condition of the car. Held, that it could not be said as a matter of law that it was negligence not to provide a safety bar on the car.—(*Morgan v. Los Angeles Pacific Co.*, 108 Pac. Rep., 735.)

Illinois.—Negligence—Imputed Negligence—Infants—Injuries to Infant—Instructions—Definition—Negligence of Gripman.

Negligence of a mother in permitting a child four years old to go out in the street, whereby he was injured, and negligence of a brother of such child in not taking care of him while on the street, cannot be imputed to the child.

An instruction, in an action for injuries to an infant four years old by being struck by a street car, that the negligence of the mother in permitting plaintiff to go on the street, or the negligence of his brother in not taking care of him while on the street, could not be charged against plaintiff, and "it is not a defense to the suit," is not erroneous, in that by the use of the quoted words the jury were authorized to find against defendant, though the negligence of the brother was the proximate cause of the injury, where other instructions given based liability on proof of negligence, which must be the proximate cause of the injury.

An instruction defining "negligence" as the omission to do something which a reasonable man, guided by those ordinary considerations which ordinarily regulate human affairs, would do, or the doing of something which a prudent and reasonable man would not do, is substantially correct.

In an action for injuries to an infant run down by a street car, a requested instruction that if plaintiff ran into the side of the car, and if the car did not run into the plaintiff, defendant was not guilty, was properly refused, as the injury might have been caused by the act of the gripman in looking to one side, by reason of which he did not see the child as he should, of which there was evidence in the case.

Where an infant of tender years stood still a sufficient distance from a street car track to enable the car to pass him without coming in contact with him, and there was nothing in his action which indicated to the gripman that he was about to cross the track in front of the approaching car, and without warning he suddenly and unexpectedly started to cross in front of the car and was injured, there could be no recovery.

But where it was reasonably apparent to the gripman that the infant intended to cross in front of the car, and the gripman recklessly and negligently failed to stop the car, and ran against the infant, or the infant, by reason of such conduct, was brought into collision with the car, the infant could recover.

Where the gripman failed to discover the intention of the infant to cross in front of his car, because his attention was distracted by a disturbance on an adjoining corner, and in consequence of such inattention the infant is injured, the street railroad company is liable, though the front of the train had passed the infant and the infant ran against the side of the car.

Where in an action for injuries to an infant by a street car while he was crossing the street diagonally it was shown that the car running south stopped at a street north of where the accident occurred, and stopped immediately after the injury, and the distance between the place of stopping and where the accident occurred was less than 100 feet, evidence that the gripman was looking away "after the car started" was material, because of the shortness of the distance, no matter when he looked away, up to the

time of the accident.—(*Perryman v. Chicago City Ry. Co.*, 89 N. E. Rep., 980.)

Indiana.—Husband and Wife—Injury to Wife—Recovery by Husband.

Where a husband seeks pecuniary compensation for an injury to his wife, his damages must be determined as far as practicable on a financial basis, and no allowance can be made for the wife's suffering.

A husband seeking pecuniary compensation for an injury to his wife is ordinarily entitled to recover without a special plea for any injury sustained from loss of the aid, society, and companionship of the wife, though to justify a recovery for loss of services of exceptional value outside of the usual domestic duties a special plea may be necessary.

A husband suing for pecuniary compensation for injury to his wife may not split up the elements of his damages as to the value of her assistance in his business, her services in the household, her society, and companionship, and his testimony that her services, of which he had been deprived, were worth a specific sum per week to him must be deemed to cover his entire loss.—(*Indianapolis Traction & Terminal Co. v. Menze* (No. 21,360), 89 N. E. Rep., 370.)

Kentucky.—Damages—Personal Injuries—Excessiveness.

Plaintiff, a steam fitter earning \$2.25 per day, was injured on August 9, 1907. On September 16 following he returned to work, and worked 12 days in that month, losing but few days thereafter because of inability to work, and in November following his wages were increased. He had no broken bones or dislocated joints. Several physicians testified that he had a curvature of the spine, and that he had suffered a severe nervous shock, and that pressure on either side of the spinal column, which was enlarged and swollen, increased the pulse. There was other evidence, however, that the increased temperature and pulse may have been due to acute indigestion, from which he suffered, and, though the physicians testified that his condition would likely grow worse, there was no satisfactory evidence of a permanent impairment of his power to earn money. Held, that a verdict for \$5,000 was so excessive as to indicate passion and prejudice and required a new trial.—(*Louisville Ry. Co. v. Roser*, 122 S. W. Rep., 149.)

Massachusetts.—Injuries to Passengers—Negligence—Starting of Trains.

As defendant's two-car train moved slowly along the platform of a subway station, and was about a car length from the place where it was to stop, plaintiff's intestate attempted to get on the rear platform of the motor car; but his hand slipped from the grab iron and he fell under the train, receiving mortal injury. Held that, the carrier being bound to provide for the public the quickest possible entrance to its cars consistent with safety, it was not negligent in failing to require that the entrance doors be locked until the car came to a standstill, and that no negligence was therefore shown.

Where plaintiff's intestate attempted to board a moving subway car before it had stopped, and, losing his hold, fell and was injured, every element of danger being as plain to intestate as to defendant's servant, defendant's servant was not negligent in failing to thwart intestate's effort to board the car, nor in violating a rule requiring conductors at stations to stand on the rear step of a car platform, with the left hand grasping the body rail and the right hand the dasher rail, facing outward toward the station platform, and ride thus until the car arrives at its assigned berth; the object being to keep any person from boarding the car while in motion, etc.—(*Gagnon v. Boston Elevated Ry. Co.*, 91 N. E. Rep., 875.)

Michigan.—Injury to Person Crossing Track—Contributory Negligence.

One who, knowing that a street car was following him, suddenly turned his team and attempted to cross the track in front of the car when it was about 40 feet distant, was guilty of contributory negligence.

Under the rule that plaintiff cannot recover if his negligence contributed to the injury, even though defendant's act was in violation of law, one guilty of contributory negligence cannot recover for injuries through being struck by a street car while attempting to cross the track, though

the car was running faster than permitted by a city ordinance. (*Rouse v. Michigan United Rys. Co.*, 122 N. W. Rep., 532.)

Mississippi.—Use of Streets—Right of Travelers—Operation of Cars—Duty of Motorman.

Travelers on a street and a street railway company must each use the street with reasonable regard for the safety and convenience of the other.

A motorman must keep a reasonably careful lookout for persons lawfully using the street, and use reasonable precautions to prevent accidents to them, and the degree of care required varies according to the time, place and circumstances. (*Austin v. Vicksburg Traction Co.*, 50 S. Rep., 632.)

Missouri.—Premature Start—Care required.

Where the gist of a passenger's case was that the street car was halted to let her alight in obedience to her signal, and was negligently started while she was doing so, she was entitled to have the jury pass on the weight of the evidence supporting such case, though she was in error as to her claim that the car always stopped at the west side of the street intersection.

Where a street car stopped at a crossing in response to a signal that a passenger desired to alight, there was a fair inference that the operatives knew, or should have known, that some person desired to alight, and should have exercised care not to start until assured that no one was in the act of alighting.

An instruction only requiring of the carrier's servants the use of ordinary care to prevent injury to a passenger calls for a standard of care below the legal requirement. (*Groshong v. United Rys. Co. of St. Louis*, 121 S. W. Rep., 1084.)

New Hampshire.—Master and Servant—Injuries to Servant—Assumed Risk—Duty to Warn—Assumption of Risk.

Where a servant knew, or as a reasonable man ought to have known and appreciated, the risk he voluntarily assumed in taking the position in which he was injured, he assumed the risk, and could not recover for resulting injuries.

It is no part of a master's duty to warn an intelligent and experienced servant not to be careless in the presence of known dangers, or not to unnecessarily incur risk of injury from the operation of known physical forces.

Plaintiff, an experienced motorman, knew that the rear of a car coming out of a car barn would swing toward a partition, and that for some distance would be so near as to strike a man standing in the intervening space, and that, with a short car, such dangerous space extended about 3 ft. from the door jamb. While taking out a long car without making any examination as to the increase of the dangerous space, plaintiff walked in between the car and the partition to grasp the trolley cord, and, when he reached a point about 10 feet from the door, ordered the motorman to start the car, and, as it moved out, the rear part caught plaintiff, jamming him against the partition, and causing the injury complained of. He testified that he knew that the long car would make a more extensive dangerous space, but guessed or supposed he was in a safe place, and could have performed the operation in hand from the rear of the car in safety. Held, that he assumed the risk, and could not recover.—(*Manley v. Laconia St. Ry.*, 76 Atl. Rep., 81.)

New Jersey.—Speed—Necessity for Signals—Damages—Grounds—"Natural" and "Proximate" Effects of Delinquency.

It is not negligence to run a trolley car upon a public highway at a rate of speed which is not incompatible with the lawful and customary use of the highway by others with reasonable safety.

Such timely warning of the approach of a trolley car must be given as will enable others to avoid any danger from it, and the nonperformance of such duty in approaching a street crossing intended to be crossed is evidence of negligence, which, if the natural and proximate cause of the injury complained of, is actionable.

The rule of law requires that the damages chargeable to a wrongdoer must be shown to be natural and proximate effects of his delinquency. The term "natural" imports that they are such as might reasonably have been foreseen,

such as occur in an ordinary state of things. The term "proximate" indicates that there must be no other culpable and efficient agency intervening between the defendant's dereliction and the loss. (*Smith v. Public Service Corporation of New Jersey*, 75 Atl. Rep., 937.)

New York.—Care as to Persons Near Track—Injuries to Persons on Track—Contributory Negligence of Child.

It was the duty of a motorman, on approaching a crowd of boys playing tag near the track, to check the speed of the car, so as to have it under control, or at least to drop the fender and give the usual signals.

A boy 8½ years of age playing tag near a street railroad track is not, as a matter of law, guilty of contributory negligence in failing to avoid an approaching car. (*McFarland v. Elmira Water, Light & Ry. Co.*, 120 N. Y. Sup., 292.)

New York.—Injuries to Intending Passengers—Contributory Negligence.

In an action for injuries by being squeezed between two cars at a point where the tracks converged, it was not negligence for plaintiff, attempting to board one of the cars, to let a more infirm person board the car ahead of him. (*Christensen v. Brooklyn Heights R. Co.*, 119 N. Y. Sup., 509.)

New York.—Injuries to Travelers—Care Required.

A traveler on a city street was entitled to watch the way in front of him and avoid manholes in the street and their covers in passing an obstructing team, and when he was confronted by a car approaching in front at a speed violating the ordinances of the city he was not bound to clear the track under all circumstances, but was only required to exercise reasonable care.—(*Burns v. New York & L. I. Traction Co.*, 123 N. Y. Suppl., 474.)

Texas.—Negligence—Personal Injuries—Instructions—Injury to Passenger Alighting from Car—Negligence—Questions for Jury.

The court is never justified in charging the jury that certain enumerated acts would be negligence as a matter of law, or, in case they find such acts to have been committed, to find for plaintiff, unless such acts are prohibited by statute or are so lacking in ordinary prudence that reasonable minds could not differ as to the quality of the acts.

In a street car passenger's action for injuries, where it appeared that plaintiff, a cripple, while attempting to alight, handed one of his crutches to defendant's conductor, it could not be said as a matter of law that the conductor in giving the starting signal might not, as a person of ordinary prudence, have believed that in the interval elapsing between the giving of the signal and the starting of the car plaintiff would have time to steady himself on the ground, and that the conductor would have had time to pass the crutch to him.—(*Galveston Electric Co. v. Dobbert*, 127 S. W. Rep., 838.)

Washington.—Collisions—Obligation of Pedestrians—Use of Streets—Right of Pedestrians—Crossings—Duty of Pedestrians.

One approaching a street car crossing with knowledge of the situation must use ordinary care, and cannot heedlessly cross the track and throw the entire burden of his safety on the motorman on an approaching car.

The rights of pedestrians and of a street railroad are equal and their duties are reciprocal, and neither has the exclusive right of way, but each must have due regard to the rights of the other.

The rule that the failure of a pedestrian to look and listen before crossing a street car track is not negligence per se does not mean that one can carelessly cross the track without using his senses for his protection, and in determining the question of contributory negligence the failure to look and listen is a fact to be considered.

A pedestrian, knowing the situation, approached a street car crossing at night. She saw two cars on the west side of the crossing, and started across, and, when a little out from the crossing, she looked east, and saw no car, and went along. A car from the east struck her. The car was running 10 miles an hour. From the curb to the first rail was 10 ft. The car was lighted and had a headlight. Held, that she was guilty of contributory negligence as a matter of law.—(*Hellieson v. Seattle Electric Co.*, 105 Pac. Rep., 458.)

News of Electric Railways

Service Begun by Pennsylvania Railroad from New York to Long Island.

Regular service was begun on Sept. 8, 1910, over the Long Island Railroad from the terminal of the Pennsylvania Railroad at Seventh Avenue and Thirty-third Street, New York. The first train was run at 3:30 a. m., and carried a number of officials of the Long Island Railroad and the Pennsylvania Railroad. An official statement by the companies shows that on the main line, where it took 44 minutes from Seventh Avenue and Thirty-third Street, New York, to Jamaica, it requires only 19 minutes by the tunnel from the terminal. To Hollis, there is a saving of 25 minutes; to Floral Park, 24 minutes; to Mineola, 29 minutes; to Garden City, 19 minutes; to Hempstead, 23 minutes; to Hicksville, 18 minutes; to Farmingdale, 18 minutes; to Brentonwood, 25 minutes; to Ronkonkoma, 25 minutes; to Riverhead, 25 minutes; to Greenport, 40 minutes.

On the Montauk division the saving in time runs all the way from 15 minutes to 30 minutes. On the main line there are 14 trains eastward in the forenoon and 34 trains at short intervals in the afternoon. On the Montauk line, 22 morning trains are provided and 36 afternoon and night trains. Fourteen trains are run from the terminal to Oyster Bay from 12:10 a. m. to 10:10 p. m.

The terminal station of the Pennsylvania Railroad in New York was described and illustrated in the *ELECTRIC RAILWAY JOURNAL* of April 9, 1910, page 656.

Following the first day's operation of trains to the Pennsylvania Railroad terminal, Ralph Peters, president of the Long Island Railroad, issued a statement in which he said in part:

"During the first 24 hours the Long Island Railroad operated 196 trains in and out of the Pennsylvania Station, and it is estimated that about 35,000 people were carried.

"Taking it all together, the results for the first day of such a vast and important operation were quite satisfactory. There were no personal injuries to passengers or employes. There was considerable congestion at the Pennsylvania terminal ticket offices, caused by a misunderstanding of the public in connection with the honoring of tickets. This whole matter will be adjusted and straightened out within a few days. Additional facilities will also be available in the Pennsylvania station.

"The situation at Jamaica is very much congested and will be until the new terminal at that point is completed, and the management of the company can only do its best in handling the trains on time and without accident until the Jamaica facilities are completed. When that is done 75 per cent. of our present troubles will be wiped out."

Samuel Rea, vice president of the Pennsylvania Railroad, commenting upon the opening of the new Pennsylvania terminal, said:

"One important thing, however, remains undone, and that is, while the company has constructed the facilities for subway connections, the city has not yet provided these necessary rapid transit facilities to accommodate its own citizens, and the public arriving and departing from the new station. It is a matter of deep regret that the city's subway system, with proper connection, is not now completed and ready to perform this necessary function. Coupled, however, with this regret is the expectation that the Mayor of the city and the Public Service Commission will promptly have some progress made in this regard.

"Such extensions, which would serve the West Side south of Forty-second Street, under Seventh Avenue, into the borough of Brooklyn, and on the East Side, north of Forty-second Street into the Bronx, would complete the present subway system and provide service on the East and West Sides of Manhattan, or, in effect, complete two tri-borough routes. They would prove self-sustaining from the start, and their construction would, therefore, not restrict the action of the city and the Public Service Commission in projecting and perfecting any other required routes.

"The company, in expressing this opinion, does so not from a selfish interest, but as a large taxpayer and property

holder in the city, and as representing the sentiments of its patrons and citizens in all boroughs of the city for increased rapid transit facilities."

Situation in Detroit.

Proctor Owens, a so-called political dark horse, has been nominated for Mayor of Detroit by the Republicans. Mr. Owens' opponent for the nomination was Philip Breitmeyer, the present Mayor. The following statement made by Mr. Owens after it had been established beyond a doubt that he had received the nomination indicates his position in regard to the street railway issue:

"Municipal ownership will be one of the foremost planks in my platform in my effort to be Mayor of this city. I believe it is the only way to solve the street railway problem, and I will support it to the best of my ability if I am afforded the opportunity. I am for municipal ownership, first, last and all the time. It has worked wonders with our lighting and water supply. The street railway proposition must be settled, and I will give the voters every bit of energy I possess in bringing about its settlement."

Mr. Owens was born in Kentucky in 1860, and attended the University of Missouri, Northwestern University of Ohio and the University of Michigan. Subsequently he attended the Detroit College of Law and was admitted to the bar in 1901. He ran for prosecutor on the prohibition ticket two years ago and last year for circuit judge in the primaries, but was defeated in both campaigns. Several years ago he was defeated for the State Legislature.

Mayor Breitmeyer has announced that he will retire from public life. He is even quoted as favoring Mr. Thompson, the Democratic nominee for Mayor. "He was a good Mayor before," Mr. Breitmeyer is reported to have said, "and he will be a good Mayor again. We will just have to elect Mr. Thompson now—that's all."

The *Detroit News* says that members of the sub-committee on franchises of the Committee of Fifty have declared themselves in favor of suing Frederick T. Barcroft to secure certain papers in connection with his appraisal of the property of the Detroit United Railway. The *News* quotes Alderman Zink, who was defeated for renomination on Sept. 6, 1910, as saying:

"We bought this appraisal and paid a lot of money for it. The people will not believe that the Council did right. They want to know about this thing that we bought. We cannot explain and it defeated a lot of good men at the polls yesterday."

The *News* also quotes Frederick W. Walker, who succeeded Mr. Barcroft as engineer of the Committee of Fifty, as follows:

"Mr. Barcroft is not an engineer. I understand he is not a graduate of any institution. Understand me, it is merely my opinion from the work I have done on this appraisal and Mr. Barcroft's own testimony at Cleveland, that he is not an engineer. I have no right to say that he is not. For instance, Mr. Barcroft said that the engines in the power plants are obsolete. I do not agree with him, although that, of course, is a matter of our own opinion. However, Mr. Barcroft, after depreciating the engines according to his opinion does not depreciate the foundations which are built for the life of the engines. I found that the boilers in stations A and B were purchased at about the same time. In A they had had a life of 10½ years, in B only 9 1-3 years. But Mr. Barcroft depreciated the newer engines 60.6 per cent, and the older ones, of the same type and manufacture, 66 per cent."

Trackless Trolley Line in California.—The Laurel Cañon Utilities Company has placed a trackless trolley system in operation between the terminus of the Los Angeles Pacific Railway, Los Angeles, Cal., at the mouth of Laurel Cañon and Bungalowland, a distance of about 1½ miles.

New Road Opened in Washington.—The Twin City Light & Traction Company, Centralia, Wash., has placed

in operation the electric railway which it completed recently in this city. The company has secured a franchise in Chehalis, and has awarded a contract for the construction of an electric railway to connect Centralia and Chehalis, which are 5 miles distant.

New Road Opened in California.—The Stockton Terminal & Eastern Railroad, Stockton, Cal., which has an electric railway under construction between Stockton and Jenny Lind, 27 miles distant, has completed the line from Stockton to Linden and has established service temporarily between these places with gasoline motor cars.

Louisville & Nashville Railroad Experimenting with Motor Car.—The Louisville & Nashville Railroad is experimenting with a new motor car for suburban service which was designed by Theodore H. Curtis, superintendent of machinery of the company. The tests are being made with a view to adopting cars of the new type for use in competition with the electric railways.

Petition for Investigation of Boston Elevated Railway.—The League of Street Car Users of Boston has petitioned the Railroad Commission of Massachusetts to make "a complete investigation of the conduct and management of the Boston Elevated Railway," in view of the recent request of the company for additional rights and privileges which the league terms "asking the power to secure a monopoly of street railway transportation service in the metropolitan district."

Strike of Substation Employees.—The employees in the substations which supply current to the lines of the Los Angeles-Pacific Company, Los Angeles, Cal., between that city and the beaches, went on strike on Aug. 29, 1910, because the company had not replied at once to their request for an increase in wages from \$85 to \$90 a month. R. P. Sherman, general manager of the company, gave the men the alternative of returning to work at once pending the investigation of the request for an increase in wages, or having their places filled. The men returned to work.

Rehabilitation Expenditures of Chicago Railways Company.—Up to Sept. 1, 1910, the Chicago (Ill.) Railways Company had expended \$26,000,000 in the rehabilitation of its properties. This amount has been expended under the supervision of a board of supervising engineers consisting of three members, (1) in the reconstruction of approximately 200 miles of track laid on a substructure of concrete, in which the ties and the lower half of the 120-pound rails are entirely embedded; (2) in the purchase of 1,000 cars; (3) in the construction of a dozen new buildings, viz., carhouses, sub-stations, machine shops, paint shops, etc.; (4) in the laying of hundreds of miles of copper cable and trolley wire; (5) in the laying of hundreds of miles of underground conduits; (6) in the resetting of hundreds of poles and the erection of hundreds of new ones; (7) in the construction of tunnels.

San Francisco Municipal Railway.—City Attorney Long, of San Francisco, has filed a demurrer to the action brought by the United Railroads of San Francisco in the United States Circuit Court at that place to prevent the construction of a municipal railway on Geary Street, San Francisco. Mr. Long entered a general denial and introduced an affidavit by Mayor McCarthy, in which the Mayor denies that the Central Railroad ever was engaged in operating a railway on Geary Street, between Stockton Street and Taylor Street. The Mayor says the city intends to construct a street railway on Geary Street from Kearny Street to Point Lobos Avenue; to Tenth Avenue and Fulton Street, and on Point Lobos Avenue to a convenient terminal near the ocean. The Mayor denies that the city intends to construct a street railway on Market Street from East Street to Geary Street, in the construction of which the city would attempt to use any tracks, poles or wires of the United Railroads, without due compensation. According to the Mayor, the city intends to endeavor to agree with the company regarding the joint use of the tracks on Point Lobos Avenue from Thirty-third Avenue to Fortieth Avenue, but if such an arrangement cannot be made the city will construct the railway over a route to be determined upon, which will not interfere with the property of the United Railroads. It is denied that any franchise was accepted by the United Railroads or its predecessors with the understanding that the city would not become a competitor with the company.

Financial and Corporate

New York Stock and Money Market

September 13, 1910.

The volume of sales in the stock market to-day exceeded 400,000 shares. Not many months ago such a day would have been considered extremely dull. The last week has been one of the duller that Wall Street has ever experienced, and the improvement to-day was very welcome. The fact that prices advanced with activity indicated a revival in buying interest. There has been no reason for the recent stagnation except lack of public interest. There have been no happenings that have been specifically depressing.

The money market continues to be easy, with call rates especially reasonable. Quotations to-day were: Call, 1 3/4 to 2 per cent; 90 days, 4 1/2 to 4 5/8 per cent.

Other Markets

In the Philadelphia market Rapid Transit has been fairly active and there has been some trading in Union Traction. In each of these issues prices have been a trifle stronger. Other tractions have been neglected.

In Boston there has been little dealing in traction shares. Massachusetts Electric has been less active than during recent weeks. Prices for these issues have remained about the same. Boston Elevated continues to sell occasionally at about 126.

Tractions have been almost entirely absent from the Chicago trading during the past week. Railways Series 2 has now and then been sold and the price is constantly lower. The last sale to-day was at 12 3/4.

There has been little trading in traction shares in the Baltimore market during the past week, but activity in the bonds of the United Railways has continued. Prices remain unchanged.

Quotations of various traction securities as compared with last week follow:

	Sept. 6	Sept. 13
American Railways Company.....	a44	a44
Aurora, Elgin & Chicago Railroad (common).....	*50 1/4	*50 3/4
Aurora, Elgin & Chicago Railroad (preferred).....	85	85
Boston Elevated Railway.....	a126 1/2	126 1/2
Boston & Suburban Electric Companies.....	*15	*15
Boston & Suburban Electric Companies (preferred)....	*74	*74
Boston & Worcester Electric Companies (common)....	a10	10
Boston & Worcester Electric Companies (preferred)....	a37	37
Brooklyn Rapid Transit Company.....	74	74 1/2
Brooklyn Rap. Transit Company, 1st pref. conv. 4s....	82	82 3/8
Capital Traction Company, Washington.....	*131	*131
Chicago City Railway.....	a195	a195
Chicago & Oak Park Elevated Railroad (common)....	*3 1/4	*3 1/4
Chicago & Oak Park Elevated Railroad (preferred)....	*7 1/4	*7 1/4
Chicago Railways, ptcptg., ctf. 1.....	a75	a70
Chicago Railways, ptcptg., ctf. 2.....	a16 1/2	a11 1/2
Chicago Railways, ptcptg., 3.....	a8	a8 1/2
Chicago Railways, ptcptg., ctf. 4.....	a5 1/2	a4 1/2
Cleveland Railways.....	*91 1/2	91 1/2
Consolidated Traction of New Jersey.....	a73	a73
Consolidated Traction of N. J., 5 per cent bonds....	a103	a104
Detroit United Railways.....	45	45
General Electric Company.....	140 7/8	144
Georgia Railway & Electric Company (common)....	109	110 1/2
Georgia Railway & Electric Company (preferred)....	*86	*86
Interborough-Metropolitan Company (common)....	185 1/2	187 1/2
Interborough-Metropolitan Company (preferred)....	49 3/4	49 3/4
Interborough-Metropolitan Company (4 1/2s).....	79 1/4	79 1/2
Kansas City Railway & Light Company (common)....	a25	a25
Kansas City Railway & Light Company (preferred)....	79 1/2	a79 1/2
Manhattan Railway.....	133	131
Massachusetts Electric Companies (common).....	a18	a18
Massachusetts Electric Companies (preferred).....	a81 3/4	81 3/4
Metropolitan West Side, Chicago (common).....	20	20
Metropolitan West Side, Chicago (preferred).....	62	62
Metropolitan Street Railway.....	*15	*15
Milwaukee Electric Railway & Light (preferred)....	*110	*110
North American Company.....	68	67
Northwestern Elevated Railroad (common)....	a18	a18
Northwestern Elevated Railroad (preferred).....	a60	a60
Philadelphia Company, Pittsburg (common).....	a44 1/4	a44
Philadelphia Company, Pittsburg (preferred).....	a42	a42
Philadelphia Rapid Transit Company.....	17 1/2	a18 1/4
Philadelphia Traction Company.....	a84	82 3/4
Public Service Corporation, 5 per cent col. notes....	a95	95
Public Service Corporation, cfs.....	a101	101
Seattle Electric Company (common).....	*109	*109
Seattle Electric Company (preferred).....	*98 1/2	*98 1/2
South Side Elevated Railroad (Chicago).....	60 3/4	60 3/4
Third Avenue Railroad, New York.....	8 7/8	9
Toledo Railways & Light Company.....	*7	*7
Twin City Rapid Transit, Minneapolis (common)....	108	110 1/2
Union Traction Company, Philadelphia.....	a49	a43 1/2
United Rys. & Electric Company, Baltimore.....	a15	a15
United Rys. Inv. Co. (common).....	*31	*31
United Rys. Inv. Co. (preferred).....	*54	*54 1/2
Washington Ry. & Electric Company (common)....	*32 7/8	*32 7/8
Washington Ry. & Electric Company (preferred)....	*80 1/2	*80 1/2
West End Street Railway, Boston (common).....	a88	a88
West End Street Railway, Boston (preferred).....	*100	a100 3/4
Westinghouse Elec. & Mfg. Company.....	59	61
Westinghouse Elec. & Mfg. Company (1st pref.)....	*125	*125

a Asked. * Last sale.

Annual Report of the Interborough Rapid Transit Company.

Gross operating revenue of the Interborough Rapid Transit Company of New York in the year ended June 30, 1910, was \$28,987,648, a gain of 9.28 per cent over the preceding year. The subway division increased its gross earnings 14.28 per cent, while the Manhattan Railway (elevated) division gained 5.03 per cent. Operating expenses were \$11,013,143, an increase of \$265,700, or 2.47 per cent, over the previous year, the result largely of increased wages. The expenses of the subway division increased 4.59 per cent and of the elevated division 0.92 per cent. Net operating revenue was \$17,974,505, an increase of \$2,197,554, or 13.93 per cent. The gain in net revenue was 20.05 per cent for the subway division and 8.17 per cent for the elevated division. In the following comparison for two years the results from operations for the fiscal year ended June 30, 1909, were stated by the company as nearly as possible in conformity with the rules of the uniform system of accounts effective on July 1, 1909:

Year ended June 30, 1910.	Manhattan Ry. Division.	Subway Division.	1910 Total.	1909 Total.
Revenue from transportation	\$14,723,223	\$13,443,805	\$28,167,028	\$25,764,892
Other street railway operating revenue	331,919	488,701	820,620	759,502
Gross operating revenue.	\$15,055,142	\$13,932,506	\$28,987,648	\$26,524,394
Operating expenses:				
Maintenance of way and structures	\$849,626	\$664,444	\$1,514,070	\$1,412,641
Maintenance of equipment	881,566	792,221	1,673,787	1,624,812
Traffic	3,079	1,130	4,209	4,209
Transportation expenses.	3,887,832	2,849,473	6,737,305	6,479,081
General expenses	634,590	449,182	1,083,772	1,200,909
Total operating expenses.	\$6,256,693	\$4,756,459	\$11,013,143	\$10,747,443
Net operating revenue..	\$8,798,449	\$9,176,056	\$17,974,505	\$15,776,951
Taxes	1,525,142	225,280	1,750,422	1,799,807
Income from operation..	\$7,273,307	\$8,950,776	\$16,224,083	\$13,977,144
Non-operating income ..	25,635	385,389	411,024	1,001,775
Gross income	\$7,298,942	\$9,336,165	\$16,635,107	\$14,978,919
Total income deductions.	\$5,857,754	\$4,695,206	\$10,552,960	\$10,389,096
Net corporate income...	\$1,441,188	\$4,640,959	\$6,082,147	\$4,589,823
Dividends on Interborough Rapid Transit Co. stock (9 per cent)		3,150,000	3,150,000	3,150,000
Surplus	\$1,441,188	\$1,490,959	\$2,932,147	\$1,439,823
Percent expenses to earnings:				
Excluding taxes	41.56	34.14	37.99	40.52
Including taxes	51.69	35.75	44.03	47.30
Passengers carried	293,826,280	268,962,115	562,788,395	514,680,342
Daily average passengers carried	805,004	736,882	1,541,886	1,410,083

* Decrease in non-operating income is largely due to the policy inaugurated July 1, 1909, of not crediting to income the interest on advances for construction of the Belmont tunnel.

Theodore P. Shonts, the president, states in his report:

"The total amount of the taxes was \$1,750,422, as compared with \$1,799,807 last year, a decrease of \$49,385, or 2.74 per cent, the result of an increase on the subway division of 238.28 per cent, and a decrease on the Manhattan division of 12.01 per cent. This increase in subway division taxes is due to the policy inaugurated July 1, 1909, of writing off from earnings an amount sufficient to meet the State tax upon gross earnings of the subway division and the State tax on the company's capital stock. These taxes were paid under protest and are now in litigation. The decrease in the taxes of the Manhattan division is the result of a decision of the court of appeals confirming the claim that the company is entitled to the benefits of equalization in the matter of the special franchise taxes.

"The surplus over dividends of 9 per cent on the capital stock was \$2,932,147 as compared with \$1,439,823 last year, an increase of \$1,492,324, or 103.64 per cent.

"The percentage of operating expenses to gross operating revenue was 37.99 per cent, as compared with 40.52 per cent last year, a decrease of 2.53 per cent, the result of a decrease on the subway division of 3.16 per cent, and on the Manhattan division of 1.69 per cent.

"The number of passengers carried was 562,788,395, as compared with 514,680,342 last year, an increase of 48,108,053, or 9.35 per cent, the result of a gain on the subway division of 30,531,969 or 12.81 per cent, and on the Manhattan di-

vision of 17,576,084, or 6.36 per cent. The increase in the number of passengers carried during the year was distributed among practically all stations of both the subway and Manhattan divisions; the few exceptions were instances where the decreases were occasioned by local conditions.

"During the past year your properties have been kept unusually free from fire and, as a consequence, your insurance shows a decreasing cost during a period of general advancement of insurance rates throughout the country.

"Precautions and safeguards against fire have been increased on all your properties. Rigorous inspections are continuously made and systematic fire drills of employees held semi-monthly at every yard and storehouse. The watchman service has been extended and is being kept at its highest efficiency, and additional alarms have been installed, with direct connection with fire headquarters.

"Elaborate automatic sprinkler systems are now installed at your 137th Street and Broadway yard (subway division), and are nearing completion at your 159th street and Eighth Avenue yard (Manhattan division). These sprinklers, installed at an expense of over \$100,000, and operating under high pressure, are capable of deluging these yards and, in the opinion of the underwriters, make a large fire at either of these points practically impossible.

"A number of improvements were also made in your shops and storehouses during the year, resulting in a 10 per cent reduction in the cost of the insurance covering them, the saving in premium amounting to more than enough to pay the cost of making the improvements.

"As a result of changes in the organization inaugurated at the beginning of last year for the purpose of securing greater efficiency and economy in the transaction of the company's business, the general expenses of your company for the year ended June 30, 1910, decreased \$117,137, the result of decreases in general office salaries and expenses, general law expenses, law expenses in connection with damages and other miscellaneous general expenses.

"In conformity with the established custom of your company in adopting promptly every known safety device in the operation of its trains, there was installed during the year in subway cars, both local and express, an electric signaling device for signaling to the motormen when all doors are closed. By the use of this device the closing of the last door automatically signals the motorman, indicating that the train is ready to proceed. Its installation and use have not only proved satisfactory in preventing accidents, but have resulted in a very material reduction in the length of station stops and a consequent decrease in train headway.

"In last year's annual report mention was made of the practicability of increasing the service by reducing the interval between trains through the introduction of speed control signals. These signals permit trains to operate safely through stations under closer headway and their operation at Ninety-sixth Street, where they were first installed, proved so successful that their installation was extended during the past year to include the express stations from Ninety-sixth Street to Brooklyn Bridge.

"For the purpose of facilitating the loading and unloading of passengers and reducing station stops, so as to secure a closer train headway and consequent increase in the service, center side doors are now being installed on all cars operated in the express service in the subway.

"The company some time ago installed an automatic recording instrument on the Second Avenue line of the Manhattan division and recently, owing to its satisfactory operation, arranged for the extension of its use over the entire system. This device provides a printed record for each motorman, indicating at the end of each trip the degree of economy exercised by him during the trip. The operation of the device is resulting in a considerable saving for the company by reducing the amount of electrical current consumed.

"As an incentive to individual effort a premium system has been inaugurated whereby motormen having the best record—i. e., those operating their trains in the most economical manner—receive a substantial bonus at the end of each month. The interest displayed by the motormen in their efforts to make improved records is very marked, and the economies effected and increased efficiency secured by the introduction of the device are very gratifying.

"The following statement shows the results of the adjustment of claims:

	1910.	1909.	Increase.	Per cent.
Claim, suits and judgments...	\$214,198	\$222,088	*\$7,890	3.5
Expenses	107,411	105,417	1,994	1.9

* Decrease.

"With an increase of 48,108,053 in the number of passengers carried, the aggregate of verdicts rendered against the company during the year was \$27,372. In the supreme court, the plaintiffs recovered in only 19 per cent of the cases tried and in all of the courts the plaintiffs' recoveries were 30 per cent. This was a reduction of over 6 per cent compared with last year. The percentage of verdicts in favor of the company in all the courts was 42 per cent, the same as last year.

"Notwithstanding the increase in the number of passengers carried, there were only six more actions brought in the supreme court, although, as last year, there was an increase in the number of petty actions in the lower courts. Only \$19,998 in judgments are pending on appeal.

"The cost of damage settlements and judgments amounted to 0.74 per cent and the legal and claim department expenses to 0.37 per cent of the gross operating revenue.

"With the approval of Mayor Gaynor and the Public Service Commission, your company successfully advocated before last winter's Legislature a bill intended to pave the way for the general third tracking and extensions of the Manhattan Railway system by avoiding legal delays in condemnation proceedings and facilitating immediate construction of the same when completely authorized, in accordance with our plan. Similar efforts resulted in the enactment of a measure allowing a transfer, subject to permission of the commission and the Mayor, of the Belmont tunnel property to another railroad corporation. Governor Hughes signed both of these bills.

"The Federal excise tax on corporations imposed under the authority of an act of Congress passed at the session of 1909 amounted to about \$60,796 for the year ending Dec. 31, 1909; and, because of the large penalties provided for, that amount has been paid by the company, under protest. In January of this year an equitable action was brought by one of the company's stockholders to enjoin the company and its directors from paying this tax, on the ground that the act was contrary to certain provisions of the constitution of the United States. The pleadings, besides raising the general constitutional questions contained in other test cases, present the peculiar conditions under which this company operates the municipally-owned subway, including its exemption from taxation. The action, with others of a similar nature, is now before the United States supreme court, and argument will be heard some time in the fall.

"The proceeding brought by this company against the comptroller of the State of New York to review his action in assessing this company for the State franchise tax measured by a percentage upon subway earnings and upon dividends paid in excess of 4 per cent was argued before the appellate division of the New York supreme court in March, 1910, and a decision was handed down whereby the comptroller's assessment for excess dividend taxes was annulled. This would mean the cancellation and credit to the company of taxes already paid to the amount of \$186,375, and a saving in future taxes of \$52,500 a year. The State has appealed to the court of appeals from that decision, and when the matter is finally determined it is probable that an even greater reduction will be obtained.

"The long litigation over the special franchise taxes of the Manhattan Railway Company is about concluded. As a result of the trial of these proceedings, the tax for the year 1909 was reduced by the sum of \$139,917. This species of taxation with respect to the elevated lines is particularly onerous, and it is confidently expected that the large assessments made by the State Board of Tax Commissioners will be further reduced upon appeal.

"Practically all of the litigation over the special franchise assessments upon subsidiary and affiliated companies has been concluded, and substantial reductions have been secured.

"Immediately upon the passage of the amendments to the rapid transit act, near the close of the legislative session of 1909, in view of the urgent need of additional rapid transit facilities, and in response to a request from the Public Service Commission in reply to an earlier proposal for per-

mission to extend your lines, your company prepared and forwarded to that body under date of June 30, 1909, the most favorable proposition for the construction and operation of new subway and elevated extensions that it was justified in making under the act as amended. This proposition, which constituted the logical extensions of the present subway and elevated systems, owing solely to the fact that the city was without funds for subway construction, was predicated entirely upon the use of private capital, the title to the new subways to vest in the city in conformity with contract No. 1. On Aug. 27, 1909, a reply was received from the commission, suggesting certain changes and modifications in the routes proposed in our application, which suggestions were complied with as far as the interests of your company would permit, the principal change being the substitution of Madison Avenue for the Lexington and Third Avenue routes. On Nov. 24, 1909, this amended proposal was rejected by the Public Service Commission. In the same communication, however, your company was invited to submit new proposals involving further modifications, particularly with respect to the separation of the two propositions for subway and elevated improvements.

"In the meantime, the situation in regard to the construction of new subways had changed very materially. City officers had been elected on a platform pledged to city-built subways, and by the passage of a constitutional amendment the city had in sight funds with which to construct its own subways. It could borrow money for this purpose, and indicated an intention to do so, at from 1¾ per cent to 2 per cent less than private capital could be secured for, which difference in interest charges alone made the use of private capital impossible. But, in order to meet the views of the Public Service Commission, as far as possible, and with a view to bringing about the earliest practicable relief from the present overcrowded condition, your company on June 10, 1910, addressed a communication to that body offering to carry out the elevated improvements independently of subway construction and to put the Belmont tunnel in operation as a part of the present subway system, with free transfers to all existing subway lines. Subsequently, it having been tentatively considered in various conferences with the commission that private capital could not be used in competition with city money, and William J. Gaynor, Mayor, having expressed a desire for the company's views on subway construction, they were furnished him in a letter dated July 5, 1910. They were also simultaneously furnished to the Public Service Commission in response to a similar request from William R. Willcox, chairman.

"The conclusions embodied in the proposal now before the commission were arrived at after a very careful study of the transit needs of Greater New York. They are based on long experience in determining the requirements of the traveling public and were compiled in a spirit of fairness to all concerned, i. e., the city, the passenger, and the company. These logical extensions of the existing subway will not only double its present carrying capacity, but will enable passengers to travel directly to and from all important centers without transferring. At the same time, as construction progresses, each new section can in turn be joined to existing lines making the additional mileage immediately available. For example, the Pennsylvania Railroad terminal can be connected with the West Side subway at Forty-second Street in 18 months; the Bronx extensions can be completed in about the same time, while the Brooklyn extensions can be placed in operation in 15 months, and the Belmont tunnel in three months.

"As to the use of city money versus private capital, there can be no difference of opinion. Inasmuch as the city receives all of the profits for the first five years, and shares in the profits equally with the company thereafter, the saving of over \$1,000,000 per annum in interest charges alone by the use of city money illustrates as nothing else can that the use of private capital would be an economic waste in which the city and the fare-payers would be equal losers with your company. Similarly, the establishment of a universal 5-cent subway fare, as against a 10-cent fare between two independent lines, is equally conclusive proof of the wisdom of extending the present system."

Additions and betterments chargeable to capital account for the year ended June 30, 1910, aggregated \$1,295,033 for the Manhattan division and \$3,031,302 for the subway division.

Receipts of the voluntary relief association for the year ended June 30, 1910, were \$80,752, and disbursements were \$69,448. During the year there were 76 deaths. The total membership at the close of the year was 5,687. From the dates on which two recreation rooms were opened, in March, 1910, to the close of the fiscal year over 95,000 luncheons were served in the rooms.

Duluth-Superior Traction Company, Duluth, Minn.—A quarterly dividend of 1¼ per cent has been declared on the common stock of the Duluth-Superior Traction Company payable on Oct. 1, 1910. This dividend compares with 1 per cent paid quarterly from October, 1909, to July, 1910, inclusive.

El Paso (Tex.) Electric Railway.—The El Paso Electric Railway has filed with the Secretary of State of Texas a certificate of the increase in its capital stock from \$1,500,000 to \$2,500,000.

Greenville (S. C.) Traction Company.—It is stated that a controlling interest in the Greenville Traction Company, which controls the Greenville Gas & Electric Company, has been secured by the Southern Power Company, Charlotte, N. C.

Mattoon (Ill.) City Railway.—The Mattoon City Railway has filed at Springfield, Ill., a certificate changing its name to the Central Illinois Public Service Company. The company has canceled \$160,000 of refunding and extension mortgage bonds of 1906, which were due in 1936, which leaves outstanding \$300,000 of first mortgage 5 per cent bonds.

Ocean Shore Railway, San Francisco, Cal.—At the hearing before United States District Judge Van Fleet on Sept. 6, 1910, to determine the amount of liens against the company that should have priority over the bonds, the attorney for the receiver of the company filed a report showing that the receipts of the company between Dec. 7, 1909, and July 31, 1910, were \$116,689 and that the expenditures were \$204,872. The matter was continued until Sept. 10, 1910.

Philadelphia (Pa.) Rapid Transit Company.—A meeting of the directors of the Philadelphia Rapid Transit Company was held on Sept. 7, 1910. Following the meeting Charles O. Kruger, president of the company, said: "No changes will be made in the board. The two directors whose terms expire, Mr. Loeb and Mr. Phipps, have declared that they will continue to serve if re-elected. The ballot to be submitted at the annual meeting will contain, therefore, no new names." The annual report of the company will be presented at the meeting of the stockholders on Sept. 21, 1910.

Dividends Declared.

Interborough Rapid Transit Company, New York, N. Y., quarterly, 2¼ per cent.

Twin City Rapid Transit Company, Minneapolis, Minn., quarterly, 1¾ per cent, preferred; quarterly, 1½ per cent, common.

Houghton County Traction Company, Houghton, Mich., semi-annual, \$3 per share, preferred; semi-annual, \$2.50 per share, common.

Louisville (Ky.) Traction Company, quarterly, 2½ per cent, preferred; quarterly, 1 per cent, common.

American Railways, Philadelphia, Pa., quarterly, 1½ per cent.

Brooklyn (N. Y.) Rapid Transit Company, quarterly, 1¼ per cent.

Duluth-Superior Traction Company, Duluth, Minn., quarterly, 1 per cent, preferred; quarterly, 1¼ per cent, common.

El Paso (Tex.) Electric Company, 2 per cent, common (No. 2).

Northern Ohio Traction & Light Company, Akron, Ohio, quarterly, three-quarters of 1 per cent.

Portland Railway Light & Power Company, Portland, Ore., quarterly, 1¼ per cent, preferred.

South Side Elevated Railroad, Chicago, Ill., quarterly, one-half of 1 per cent.

Stark Electric Railroad, Alliance, Ohio, quarterly, three-quarters of 1 per cent.

United Traction & Electric Company, Providence, R. I., quarterly, 1¼ per cent.

Traffic and Transportation

Connecticut Company Accepts Finding of Arbitrators

The Connecticut Company, New Haven, Conn., in acknowledging receipt of the report of the board of arbitration in the matter of the wages of its employees as concurred in by Judge William S. Case and David E. Fitzgerald and receipt of the minority report filed by Clarence Deming, mention of both of which was made in the ELECTRIC RAILWAY JOURNAL of Sept. 10, 1910, page 416, says that it will abide by the findings of the majority of the arbitrators. The company says:

"In accordance with the articles of agreement under which the arbitration has been conducted a decision of a majority of the board is binding upon both parties, and we shall, therefore, acquiesce in the findings agreed upon by the first two named.

"The rates of pay decided upon will be put into effect at once, and employees will be paid on the prescribed basis from now on. The arbitration is retroactive to June 1, 1910, and as rapidly as possible the amounts due our employees will be computed and paid them. This operation, however, extending, as it does, over three months, will require a vast amount of clerical work, which cannot be completed in time for next week's payroll.

"We are disappointed that the board has not seen fit to support our contention as to what constitutes a fair rate of pay, but the decision will be acquiesced in cheerfully, and the employees will be treated exactly the same as if the decision had been arrived at by the company officers.

"We are pleased that the arbitrator appointed by the men has ruled in favor of the sliding scale, whereby employees longer in our service receive more pay than those who have just entered it as against the flat rate principle of equal pay for all men as contended for by the men themselves.

"We are also pleased that the men's arbitrator has ruled in favor of a differential whereby the employees of the larger divisions, whose work it has seemed to us is more arduous, receive more than the employees on the smaller divisions; also on the further point that our compensation for overtime is a fair one, which shall be continued."

Traffic on Northwestern Elevated Railroad.

The daily average number of passengers carried by the Northwestern Elevated Railroad, Chicago, Ill., for the year ended Aug. 31, 1910, arranged by months, follows:

	1909.	1908.
September	112,711	100,101
October	118,987	118,015
November	119,292	116,956
December	122,006	122,057
	1910.	1909.
January	117,860	111,801
February	122,332	115,419
March	124,208	116,153
April	121,739	117,584
May	118,938	112,023
June	121,173	110,988
July	115,972	103,506
August	119,605	104,790
Twelve months.....	119,574	113,667

Fender Ordinance in Trenton.—An ordinance has been introduced in the City Council of Trenton, N. J., to compel the electric railways which operate in Trenton to equip their cars with fenders to be approved by the Mayor.

New Transfer System in Pittsfield.—On Sept. 1, 1910, the Berkshire Street Railway, Pittsfield, Mass., adopted a new transfer system which makes it possible for passengers to ride anywhere within the limits of Pittsfield for a single fare.

Suits Threatened Against Overcrowding.—The city has served notice that it will institute immediately no less than 100 suits against the Pittsburgh (Pa.) Railways to compel it to observe the new ordinance prohibiting the overcrowding of cars.

Accidents in Pennsylvania.—The Railroad Commission of Pennsylvania reports that during July, 1910, 15 persons were killed and 41 persons were injured on the electric railways in the State. Three of those who were killed and 21 of those who were injured were trespassers.

Readjustment of Fares on Louisville & Eastern Railroad.—The Louisville & Eastern Railroad, Louisville, Ky., has established its fares on the basis of 2 cents a mile fixed in multiples of five, but has made no change in the rates for special monthly tickets, school tickets, and 25-trip and 50-trip books.

Complaint Against Fares in Pittsburgh.—A complaint has been filed against the Pittsburgh (Pa.) Railways with the State Railroad Commission in which it is alleged that the company refuses to issue transfers to and from West Carson Street, and that the fare of 10 cents for a continuous trip between points mentioned in the bill of complaint is excessive, unjust and unlawful and is a discrimination against persons employed in the mills and about the railroads on West Carson Street, who are unable to reside in the more healthful hill-top district of the South Side because of the excessive fares.

Extension of Hudson & Manhattan Railroad in Jersey.—The Hudson & Manhattan Railroad, which operates under the Hudson River from New York to New Jersey, has completed and placed in operation the extension of its line in Jersey City to Henderson Street, a distance of more than a mile. Only half a mile of line remains to be constructed to connect with the Pennsylvania Railroad and establish service over the line of that company to Newark. According to an official statement, the Pennsylvania Railroad will furnish 60 per cent of the equipment for the service to Newark and the Hudson & Manhattan Railroad will furnish 40 per cent.

Application for Further Suspension of Subway Order Denied.—The Public Service Commission of the First District of New York has denied an application made by the Interborough Rapid Transit Company for authority to extend its summer schedule in the subway until Oct. 1, 1910. The company obtained exemption from the order of April 5, 1910, which required that so far as was possible enough cars be run to provide just as many seats as passengers, and fixed the maximum headway during the non-rush hours in the daytime at 2½ minutes. The exemption was first made for 30 days from July 12, 1910, and later on it was extended to Sept. 5, 1910.

Protest Against Steam Railroad Milk Rates in Massachusetts.—At the recent hearing before the Railroad Commission of Massachusetts on the petition of the Boston Dairy Company, Whiting & Son and Hood & Son against the rates for transporting milk which have been established by the Boston & Maine Railroad and the Boston & Albany Railroad, it was suggested by the representative of one of the complainants that the commission recommend to the Legislature that the electric railways be permitted to carry interstate milk. For the Boston & Maine Railroad it was stated that 70 per cent of its milk business is interstate and 30 per cent intrastate. This company offered to furnish a detail statement which would show the cost of transporting milk over its lines since Aug. 1, 1910. W. P. Hall, chairman of the commission, explained that the commission is not empowered to compel electric railways to interchange cars.

Freight Service Between Philadelphia and Allentown.—The Lehigh Valley Transit Company, Allentown, Pa., has arranged with the Philadelphia (Pa.) Rapid Transit Company to establish freight service by electric railway on Oct. 1, 1910, between Philadelphia and Allentown and points in the Lehigh Valley. The service will be substantially the same as that conducted by the Lehigh Valley Transit Company over its entire system, which, as the company expresses it, is "express service at freight rates," except that the company makes no collections or deliveries. The freight rates of the Lehigh Valley Transit Company are identical with the rates of the steam railroads with a very few exceptions, such as in the case of milk, ice cream and furniture. A new freight station is being erected at Chestnut Hill, where the lines of the Lehigh Valley Transit Company connect with the lines of the Philadelphia Rapid Transit Company, and freight will be transferred here, as the difference in the gage of the tracks of the two companies prevents the operation of through cars. All other stations in Philadelphia and along the lines of the Lehigh Valley Transit Company were erected so as to permit the handling of express.

Personal Mention

Mr. W. H. Hitchcock has been appointed superintendent of transportation of the Wilmington & Philadelphia Traction Company, Wilmington, Del.

Mr. L. B. Wickersham, general manager of the United Railways, Portland, Ore., has been appointed chief engineer of the company, reporting to the president.

Mr. E. P. Shannon has been appointed assistant to Mr. John F. Stevens, president of the Oregon Electric Railway, United Railways and the Oregon Trunk Railway, Portland, Ore.

Mr. W. A. Rosen has resigned as auditor of the Interstate Railways and the United Power & Transportation Company, Philadelphia, Pa., and the companies controlled by them.

Mr. C. A. Coolidge, who was recently appointed general manager of the Oregon Electric Railway, Portland, Ore., has been appointed general manager of the United Railways, Portland, to succeed Mr. L. B. Wickersham.

Mr. Henry M. Richards, chairman of the executive committee of the Washington Water Power Company, Spokane, Wash., and formerly president of the company, was presented with a silver loving cup recently by the employees of the company as a token of esteem.

Mr. John P. Moore, formerly instructor in electrical railway engineering at the Pennsylvania State College, is again associated with Mr. Robert P. Woods, Indianapolis, Ind., consulting and constructing engineer. Mr. Moore is located at Roswell, N. M., and is engaged in extensive irrigation projects in the Southwest in the capacity of electrical engineer.

Mr. R. C. Taylor, whose resignation as superintendent of motive power of the Indiana Union Traction Company, Anderson, Ind., was announced in the *ELECTRIC RAILWAY JOURNAL* of Sept. 10, 1910, has been appointed master mechanic of the Illinois Traction System, in charge of the shops of that company at Granite City, Ill., just outside of St. Louis.

Mr. Fred E. Fisher, general manager of the Joliet & Southern Traction Company, Joliet, Ill., and president of the Fisher Construction Company, has resigned from these companies to become special construction manager of the Illinois Traction Company's line between Morris and Joliet. On Sept. 7, 1910, the employees of the Joliet & Southern Traction Company surprised Mr. Fisher at his home in Joliet and presented him with a gold watch and chain as a token of esteem.

Mr. R. K. Kirkpatrick, has resigned as superintendent of the Kansas City & Westport Belt Railway, Kansas City, Mo., a short freight and passenger line controlled and operated by the Metropolitan Street Railway, Kansas City. Mr. Kirkpatrick became connected with the Metropolitan Street Railway in 1904. At first he did special work for the company, compiling city and county ordinances and franchises. Subsequently Mr. Kirkpatrick was appointed superintendent of the Kansas City & Westport Belt Railway. His work with this company was very successful. There were very few accidents, and the receipts from passengers and freight increased rapidly with only a small increase in operating expenses. Mr. Kirkpatrick practised law in Buffalo, N. Y., before he became connected with the Metropolitan Street Railway, Kansas City.

Mr. Charles L. Sykes, for three years assistant general passenger agent of the interurban electric railway operated between Fort Worth and Dallas by the Northern Texas Traction Company, Fort Worth, Tex., has been appointed general passenger agent of the Galveston-Houston Electric Railway, which will be placed in operation early in 1911. The Northern Texas Traction Company is controlled by Stone & Webster, Boston, Mass., and Mr. Sykes has been in the employ of Stone & Webster for six years. Since August, 1910, he has been touring the West and the East to study advertising methods used by electric railways. Mr. Sykes was secretary of the Fort Worth Ad Men's Club, which he represented recently at Omaha at the national meeting of advertising organizations. He will assume his

duties with the Galveston-Houston Electric Railway on Oct. 1, 1910.

Mr. N. J. Hullin, whose appointment as general superintendent of the railway department of the Sacramento Electric, Gas & Railway Company, Sacramento, Cal., was announced in the *ELECTRIC RAILWAY JOURNAL* of Sept. 3, 1910, began his business career at the forge in the shop of a shipsmith. For the last 26 years, however, he has been engaged in street and electric railway work. His first street railway work was as a road machinist with the Market Street Railway, San Francisco, Cal. He next became a repairer of cable grips with the Sutter Street Railway, San Francisco, Cal. For four years he acted as roadmaster of the Piedmont Railway, Oakland, Cal., and for 14 years was in charge of track construction and maintenance for the Sacramento Electric, Gas & Railway Company. In February, 1910, Mr. Hullin supervised the reconstruction of about 4 miles of line for the Power, Transit & Light Company, Bakersfield, Cal., and returned to Sacramento to accept the position of general superintendent of the railway department of the Sacramento Electric, Gas & Railway Company.

Sir J. Clifton Robinson, of London, celebrated on Aug. 30, 1910, the fiftieth anniversary of his connection with tramways construction. This date is coincident with the fiftieth anniversary of the existence of tramways in the United Kingdom, because on Aug. 30, 1860, Mr. George Francis Train opened the first British tramway at Birkenhead. With this work Sir Clifton Robinson, then a boy of 12 years, was associated in a minor capacity. Subsequently he joined the staff of Mr. Train and in 1866 accompanied him to America. Since that time Sir Clifton has taken a very active part in tramway construction and operation in many British cities, including Edinburgh, Liverpool, London and Brussels, as well as in the Irish cities of Cork and Dublin, and also in Los Angeles, Cal. He is perhaps best known in connection with the London United Tramways Company, the largest privately owned tramway system in Great Britain, which he promoted and managed for a number of years. This system is now a part of the tramway system belonging to the Underground Electric Railways Company, Ltd., with which Sir Clifton Robinson is identified as a director of the District Electric Railway and the Metropolitan Underground Railway of London.

Henry L. Doherty & Company, New York, N. Y., announce the incorporation of the Cities Service Company under the laws of Delaware, with an authorized capitalization of \$50,000,000, to be divided into \$30,000,000 of 6 per cent cumulative preferred stock and \$20,000,000 of common stock. The common stock has been all issued and when the transfers for the issues of the subsidiary companies that will be first taken into the combine are made there will be about \$5,000,000 at once put in use. Of the remainder there has been set aside to be used for corporate purposes, within the discretion of the board of directors, \$500,000, which will leave a remainder of \$14,500,000 of common stock in the treasury to be used for the acquirement of additional properties. It is announced that this holding company will take over as the basis of its organization the Denver Gas & Electric Company, the Empire District Electric Company and the Spokane Gas & Fuel Company. Henry L. Doherty & Company are to act as bankers and syndicate managers for the new company and will be paid for their services only in common stock. When the stocks of the Cities Service Company have been issued there will be outstanding: preferred, \$8,779,650; common, \$4,889,825. The balance of the securities are to be retained by the company to acquire additional properties. The Cities Service Company contemplates taking over a number of other properties in addition to those that have here been named. These include the Lincoln Gas & Electric Company, Lincoln, Neb., and the Knoxville Gas & Fuel Company, Knoxville, Tenn. The Montgomery Light & Water Power Company, the Meridian Light & Railway Company and several other properties will probably be eventually included. Henry L. Doherty will be president of the company. No bonds will be issued by the Cities Service Company, but the interest and principal of the underlying bonds of the subsidiary companies will be guaranteed by the Cities Service Company.

Construction News

Construction News Notes are classified under each heading alphabetically by States.

An asterisk (*) indicates a project not previously reported.

RECENT INCORPORATIONS

***St. Clair Traction Company, Belleville, Ill.**—Incorporated in Illinois to build an electric railway from Belleville to a point in the southeastern part of St. Clair County. Capital stock, \$2,500. Headquarters, Belleville. Directors: Edward L. Thomas, David O. Thomas, C. A. Heinzelman, L. D. Turner, Jr., and William A. Twenhoefel, all of Belleville.

***Suffern (N. Y.) Railway.**—Incorporated in New York to build a street railway in Suffern. Capital stock, \$50,000. Incorporators: W. Barbour, S. D. Brewster, New York, and H. H. Parmlee, Paterson, N. J.

***Montrose & State Line Railroad Company, Montrose, Pa.**—Chartered in Pennsylvania to build a 15-mile railway from Montrose to the New York and Pennsylvania State line. Capital stock, \$150,000. Incorporators: H. E. Paine, president; F. H. Widmyer, F. W. Ogden, W. J. Douglas, E. C. Randolph, T. P. Hamilton, Howard Fravel, H. J. Paine, Scranton, and R. L. Koehler, Dalton.

***Buckhannon, Weston & Glenville Electric Railway, Weston, W. Va.**—Incorporated in West Virginia to build an electric railway from Sago to Buckhannon, via Weston and Glenville. Incorporators: S. C. Rusmisell, L. H. Morrison, J. G. Hall, L. H. Treppett, W. H. Gaston, G. F. Day, C. E. White, D. O. B. Hall, of Buckhannon, and J. A. Crislip, Clarksburg.

FRANCHISES

Stockton, Cal.—The Central California Traction Company, San Francisco, has been granted a franchise by the City Council to extend its tracks over certain streets in Stockton.

Crainville, Ill.—The Egyptian Traction Company, Eldorado, has been granted a franchise by the Board of Trustees to build an electric railway in Crainville. This projected 100-mile railway will connect Mt. Vernon, Ind., and Murphysboro, Ill. T. E. K. Hixon, Eldorado, general manager. [E. R. J., July 30, '10.]

Peoria, Ill.—The Peoria & Galesburg Railway has asked the City Council for a franchise to use the tracks of the Peoria Terminal Railway of South Washington Street at Peoria, thereby giving it a line almost to the city limits, from which point it will start for Galesburg. S. F. Atwood, secretary. [E. R. J., Aug. 13, '10.]

Fort Wayne, Ind.—The Fort Wayne & Toledo Electric Railway has been granted a new franchise by the County Commissioners to build an electric railway through Allen County to Bryan, Ohio. This projected 44-mile railway will connect Fort Wayne and Maysville, Ind., and Hicksville, Bryan and Toledo, Ohio. R. T. Bastress, general manager. [E. R. J., Sept. 3, '10.]

Hammond, Ind.—The Indiana Northwestern Traction Company, Monticello, will ask the City Council for a new franchise to build its line in Hammond. A proposition will also be submitted to the County Commissioners to build a joint bridge over the Little Calumet River. This proposed line will connect Cedar Lake, Hammond, Crown Point and Chicago. Eugene Purtelle, 222 La Salle Street, Chicago, president. [E. R. J., July 2, '10.]

Indianapolis, Ind.—The Beech Grove Traction Company has been granted a franchise by the City Council to build a railway over several streets in Indianapolis. This projected railway will connect Beech Grove and Indianapolis. C. F. Smith, secretary. [E. R. J., April 16, '10.]

Mason City, Ia.—The Mason City & Clear Lake Railway has been voted a 25-year franchise by the City Council to build a belt line and possibly suburban extensions in Mason City. A similar franchise will be voted on for a line in Clear Lake on Sept. 16.

Baltimore, Md.—Messrs. Hiller & Heintzeman will apply to the City Council for a franchise to build a street railway to connect South and Southwest Baltimore. It is understood that the United Railways & Electric Company,

Baltimore, will construct and operate the proposed line if the franchise is passed.

Waltham, Mass.—The Boston & Western Railway, Boston, has asked the Board of Aldermen for a franchise for a line on Main Street.

Long Branch, N. J.—The Atlantic Coast Electric Railroad, Asbury Park, has been granted an extension of time on its franchise by the City Council for building an extension of its line in Long Branch.

Dayton, Ohio.—The Dayton Street Railway will apply to the City Council for a franchise to extend its Kammer Avenue line from its present terminus into the Westwood plant, in Dayton. The company has begun work on the eastern extension of its line, a distance of 1 mile.

Palestine, Tex.—George W. Burkett and associates have been granted a franchise by the city commissioners to build a street railway in Palestine. [E. R. J., June 25, '10.]

Springville, Utah.—Abel J. Evans and associates have been granted a franchise by the Council to build an electric railway in Springville. This is part of a plan to construct an electric railway from Salt Lake to Payson. Franchises have been granted from all the cities in Utah County except Provo and Spanish Fork. [E. R. J., Sept. 3, '10.]

Bellingham, Wash.—J. D. Crary, representing the Gray's Harbor Electric Company, Aberdeen, has applied to the City Council for a franchise to build a railway in Bellingham. Similar applications for franchises have been made by this company to the Councils in South Bend and Raymond.

Freewater, Wash.—The Walla Walla Valley Traction Company, Walla Walla, has been granted a franchise by the City Council to build an electric railway in Freewater.

Morgantown, W. Va.—The South Morgantown Traction Company will apply to the Council for a franchise to extend its railway in Morgantown. It is expected to extend this line to connect Fairmont and Morgantown.

TRACK AND ROADWAY

Phoenix, (Ariz.) Railway.—This company is building an extension of its line on Second Avenue in Phoenix which will be 2 miles long.

Pacific Electric Railway, Los Angeles, Cal.—It is reported that this company will build a line from Cypress to Anaheim.

Oakland (Cal.) Traction Company.—This company is said to have begun work on the extension of its Liese Avenue line in Allandale, and will continue the extension to the foothills of Fruitvale.

Pasadena (Cal.) Rapid Transit.—The directors of this company will vote on Oct. 18, 1910, to issue \$3,000,000 of bonds for building an electric railway between Pasadena and Los Angeles on a direct line without grade crossings and promising a 12-minute service between the business centers of the two cities. Horace M. Dobbins, Pasadena, president. [E. R. J., Sept. 25, '09.]

Sacramento Electric, Gas & Railway Company, Sacramento, Cal.—This company, it is reported, will make extensive improvements on its lines. The continuation of double tracks from Tenth Street and P Street along Tenth Street and Y Street will soon be built, and the operation of a permanent line of cars on E Street is also being considered.

Peninsular Railway, San José, Cal.—This company, it is said, has begun work grading for the extension of its tracks to Dumbarton Bridge.

Vallejo & Northern Railways, Vallejo, Cal.—This company, which is building an electric railway to connect Vallejo, Cordelia, Suisun, Vacaville and Sacramento, announces that a branch will be built from Sacramento to Woodland. [E. R. J., Aug. 13, '10.]

***Golden, Col.**—It is stated that the same financial interests which are back of the North American Smelter & Mines Company, Golden, are planning to build an electric railway to connect the Golden smelter with the mines of Clear Creek and Gilpin Counties. It is possible that a through passenger service from Idaho Springs and Central City will be established, the tracks of the Denver Tramways being

used between Golden and Denver. Surveys are being made.

Nezperce & Idaho Electric Railroad, Nezperce, Idaho.—This company, it is said, will soon build a 14-mile extension from Vollmer to Forest.

Decatur Southern Traction Company, Decatur, Ill.—At a meeting of the stockholders of this company held Aug. 31 the capital stock of the company was increased from \$25,000 to \$1,200,000. Arrangements were also made to begin work at once on the line from Decatur to Pana. H. C. Simmons, Virden, secretary. [E. R. J., July 30, 1910.]

DeKalb & Western Railway, DeKalb, Ill.—It is reported that this company has begun tracklaying near Lee Center on its proposed electric railway to connect Chicago and Rock Island. Newton Taylor is interested. [E. R. J., Dec. 25, '09.]

Aurora, Elgin & Chicago, Elgin, Ill.—It is reported that this company has completed surveys for a proposed extension of its line from the Des Plaines River to Hinsdale.

Illinois Western Interurban Railway, Quincy, Ill.—This company is said to have secured most of the right-of-way for its projected electric railway to connect Quincy, Mt. Sterling, Ripley, Rushville, Littleton, Macomb and Bushnell. A. J. Whitman is interested. [E. R. J., Aug. 13, '10.]

Galesburg & Rock Island Traction Company, Rock Island, Ill.—This company is said to have let the contract to the London Construction Company for building its proposed 41-mile electric railway to connect Galesburg and Rock Island. Warren C. McWhinney, president. [E. R. J., July 23, '10.]

Evansville, Mt. Carmel & Olney Electric Railway, Evansville, Ind.—M. A. Peeples, Goshen, Ind., vice-president of the Burnes Construction Company, Chicago, Ill., which has the contract for building this line, announced that work on the line would be commenced in two weeks. It is stated that \$100,000 has been raised for the construction of the line. It will connect Mt. Carmel, Highland, Darmstadt, Cynthia, Owensville, Friendsville, Lancaster, Berryville and Olney. [E. R. J., July 2, '10.]

Forest City & Mason City Railway, Forest City, Ia.—This company, recently incorporated, has completed surveys and is now securing rights of way for its proposed 30-mile railway to connect Forest City, Fertile and Mason City. C. N. Christopherson, Forest City, is interested. [E. R. J., July 2, '10.]

Covington, Big Bone & Carrollton Railroad, Covington, Ky.—This company has begun construction on its proposed 22-mile interurban railway to connect Carrollton, Covington, Crescent Springs, Big Bone, Ghent, Warsaw, Union, Florence, Erlanger, Ludlow and West Covington. M. J. Crouch is interested. [E. R. J., June 18, '10.]

Wahpeton-Breckenridge Street Railway, Breckenridge, Minn.—This company, which has recently placed its line in operation, it is said, contemplates extending its railway eventually to connect Great Bend, Hankinson, Lidgerwood, Sisseton and Watertown. [E. R. J., March 26, '10.]

Gallatin Valley Electric Railway, Bozeman, Mont.—It is reported that this company will extend its line to Belgrade.

Virginia City, Southern Electric Railway, Virginia City, Mont.—This company is reported to have financed its project and is asking for bids for the grading of its proposed 12-mile railway between Alder and Virginia City. Karl Elling, president. [E. R. J., April 23, '10.]

Beatrice, Neb.—R. Iams, Clay Center, and associates are said to be at work on a plan to build a 200-mile interurban railway to connect Beatrice, Neb., and Wichita, Kan., via Greenleaf, Clay Center, Industry, Manchester, Salina, Lindsburg, McPherson and Halstead, Kan. Application for a charter will soon be made. [E. R. J., June 11, '10.]

Nebraska Traction & Power Company, Omaha, Neb.—This company, which has recently awarded the contract to the Baker Construction Company, Omaha, for building its proposed extension from Fremont to Norfolk, is said to be considering plans for constructing a branch line from Clarksburg to Madison.

Jersey Central Traction Company, Keyport, N. J.—This company, it is reported, will soon extend its railway to Elizabeth and Long Branch via Sea Bright.

***Mandan, N. D.**—J. M. Ramsey, Norfolk, Ohio, is reported to be considering plans for building an electric railway to connect Mandan and Bismarck, N. D.

Citizens' Traction & Power Company, Albuquerque, N. M.—This company has decided to operate electric cars instead of gasoline motor cars over its proposed 2-mile street railway in Albuquerque. [E. R. J., July 16, '10.]

Dayton, Covington & Piqua Traction Company, Dayton, Ohio.—This company is reported to be considering plans to extend its line from Union to Versailles.

Muskogee (Okla.) Electric Traction Company.—This company has begun work on its Fair Ground extension, a distance of 2 miles.

Oklahoma Public Service & Interurban Lines, Stillwater, Okla.—This company, recently incorporated to build electric railways in Oklahoma and Kansas, has formally organized by electing directors. The proposed lines will extend from Stillwater to Morreson, 14 miles; Stillwater to Perkins, 10 miles; Stillwater to Glencoe, Jennings and Sulpula, 79 miles, and from Stillwater to Coyle, Langston and Guthrie, 45 miles. Directors: Harry L. Drullard and A. G. Lampke, New York City; H. K. Lytle, Brooklyn; Claude Powell, Ralph Sturgeon, G. W. Tucker and Lewis Lampke, Stillwater. [E. R. J., Aug. 20, '10.]

***London, Ont.**—Press reports state that preliminary plans are being arranged for the construction of a 50-mile electric railway to connect London and Stratford.

***Aylmer & Port Burwell Electric Railway, St. Thomas, Ont.**—Press reports state that John H. Teall, promoter of this proposed railway, has secured the necessary capital and that construction of the line is now a certainty.

Portland, Eugene & Eastern Railway, Portland, Ore.—This company advises that during the next few months it will place contracts for building 5 miles of new track in Albany. R. E. Welch, Portland, general manager.

Berwick & Nescopeck Street Railway, Berwick, Pa.—This company has awarded the contract for the material for overhead work to the H. W. Johns-Manville Company, Philadelphia, for four to eight miles of new track. The contract for rails has been let to the Pennsylvania Steel Company. Work will soon begin on the line from the Nescopeck Station to the steel plant, and it is then intended to construct a loop through Berwick and West Berwick.

Du Bois Electric & Traction Company, Du Bois, Pa.—It is said that this company has agreed with the Mahoning Valley Traction Company to build through Big Run and connect the lines of the Du Bois Electric & Traction Company and the Mahoning Valley Traction Company at the Buffalo, Rochester & Pittsburgh Railroad station in Big Run.

Ephrata & Lebanon Street Railway, Ephrata, Pa.—At a recent meeting of the directors of this company it was decided to proceed with the building of its proposed 23-mile railway to connect Lebanon and Ephrata, via Iowa, Reistville, Schaefferstown, Kleinfeltersville, Hopeland, Clay and Lincoln. George D. Krause, Lebanon, president. [E. R. J., Dec. 25, '10.]

***Meadville, Pa.**—It is said that surveys have been made, and a portion of the right of way secured for a proposed electric railway which would enter Exposition Park and connect up several lines now in operation at various points between Conneaut Lake and Pittsburgh.

***North Wales, Pa.**—Press reports state that surveyors have begun outlining the route for the proposed electric railway to connect the Philadelphia division of the Lehigh Valley Transit Company at North Wales and the Philadelphia & Western Railway at Villa Nova.

Scranton (Pa.) Railway.—This company is said to be considering the building of a 1-mile extension to the new Lackawanna yards at Hampton.

Amarillo (Tex.) Street Railway.—This company is said to have begun work on its 3-mile extension of its San Jacinto Heights line in Amarillo.

SHOPS AND BUILDINGS

Pacific Electric Railway, Los Angeles, Cal.—This company announces that it intends to build a new car house, south of Agricultural Park, facing on Santa Barbara Avenue, in Los Angeles. The structure will be 1000 ft. x 250 ft., of concrete and steel construction.

San Diego (Cal.) Electric Railway.—This company, it is said, will erect a temporary machine shop at Arctic Street and E Street, San Diego, for the purpose of repairing cars while its new car shops are under construction. The structure will be of corrugated iron, 62 ft. x 90 ft.

Connecticut Company, New Haven, Conn.—This company is preparing to construct a new car house, to be located at State Street and Cedar Street, in New Haven.

Aurora, Elgin & Chicago Railway, Chicago, Ill.—This company will build a combination station and office building at Wheaton. The structure will be 120 ft. x 40 ft., and will be three stories high, built of brick with tile roof. It is expected to commence construction in the fall.

New York & North Shore Traction Company, Mineola, N. Y.—This company is said to be considering plans for erecting a car house on State Street and Leavitt Avenue, Flushing.

Aylmer & Port Burwell Electric Railway, St. Thomas, Ont.—It is said that this company has secured a tract of land abutting the creek at Port Burwell, upon which it expects to build the terminal of its line.

Portland, Eugene & Eastern Railway, Portland, Ore.—This company advises that during the next few months it will place contracts for building a new car house in Albany.

POWER HOUSES AND SUBSTATIONS

Pacific Electric Railway, Los Angeles, Cal.—This company is now building a new substation in Los Angeles to replace the old University substation, which is to be demolished.

Connecticut Company, Bridgeport, Conn.—This company, it is reported, will double the floor space at its present plant in Bridgeport, and add considerably to the capacity of the station. It will install two turbo-generators of 2100-kw capacity each in the new engine room.

Sterling-Moline Traction Company, Sterling, Ill.—This company is said to be considering plans for building a power plant and dam on the Rock River at Lyndon. A. Van Petten, Stirling, general manager.

Rochester Railway & Light Company, Rochester, N. Y.—This company has been awarded the contract for supplying power for the Brighton pumping station in Rochester.

Portland Railway Light & Power Company, Portland, Ore.—This company has begun work on the superstructure of its auxiliary power plant at the foot of East Lincoln Street, in Portland. The structure is to be 100 ft. x 100 ft. with a concrete floor 3 ft. deep. The chimney is of concrete 150 ft. high. The capacity of the plant will be 10,000 hp. at the start, which can be increased as desired. The cost is estimated to be about \$250,000.

Philadelphia (Pa.) Rapid Transit Company.—This company has abandoned its plan to enlarge its Delaware Avenue powerhouse. Instead additional machinery will be installed in its station at Thirty-third Street and Market Street.

Berkshire Street Railway Company, Pittsfield, Pa.—This company will soon build a brick auxiliary power station in Cheshire, to be 20 ft. x 40 ft. and one story high. It will be equipped with 5000 kw in rotary converters. This is part of the company's plan to rearrange its power system and the contract for this work has been awarded to Fred T. Ley & Co., Springfield.

Whatcom County Railway & Light Company, Bellingham, Wash.—This company is now building an addition to its power plant on Railroad Avenue and York Street, in Bellingham. The extension will be of concrete and brick foundation, with steel frame. [E. R. J., Oct. 30, '10.]

Wheeling (W. Va.) Traction Company.—This company has awarded the contract to Lewis & Wood, Pittsburgh, Pa., for building its pump house at Forty-second Street in Wheeling. It is expected to have work begun at once.

Milwaukee Electric Railway & Light Company, Milwaukee, Wis.—This company expects to soon build an addition 80 ft. x 144 ft. and 72 ft. high to its Commerce Street power house, in Milwaukee. It will also erect a substation, 40 ft. x 57 ft., and 52 ft. high, at Clinton Street and Maple Street. Reinforced concrete will be used in both buildings.

Manufactures & Supplies

ROLLING STOCK

Portland, Eugene & Eastern Railway, Albany, Ore., is considering the purchase of one car.

Tri-City Railway, Davenport, Ia., has ordered seven 43-ft. 8-in., double-truck, closed, pay-as-you-enter cars from the Cincinnati Car Company.

Portland Railway, Light & Power Company, Portland, Ore., it is reported, is preparing to let a contract for 40 additional cars to be delivered early next summer.

Waukegan, Rockford & Elgin Traction Company, Waukegan, Ill., which is building a 15-mile line from Palatine to Bangs Lake, is considering the purchase of six cars.

Power, Transit & Light Company, Bakersfield, Cal., noted in the ELECTRIC RAILWAY JOURNAL of Jan. 15, 1910, as considering the purchase of several new cars, has ordered six 40-ft. pay-as-you-enter cars from the American Car Company.

Oakwood Street Railway, Dayton, Ohio, has completed at its shops a double-truck pay-within car, 45 ft. long over all and seating 44 passengers. If this car proves satisfactory enough cars of this type will be built to equip the company's lines.

Burlington (Vt.) Traction Company has ordered three single trucks from the Taylor Truck Company for the three semi-convertible cars which it ordered recently from J. M. Jones' Sons, as noted in the ELECTRIC RAILWAY JOURNAL of Aug. 27, 1910.

Illinois Traction System, Peoria, Ill., has placed an order with the Barney & Smith Car Company, Dayton, Ohio, for two sleeping cars. The cars will be similar in design to those now operating, as described in the ELECTRIC RAILWAY JOURNAL for March 19, 1910, page 476. The cars just contracted for will be 57 ft. long and 10 ft. wide. Each car will have 10 upper and 10 lower berths, two toilet rooms and a smoking room. The interior fittings will conform to those in use in the cars now in operation, which were designed by H. E. Chubbuck, vice-president, and J. M. Bosenbury, superintendent motive power and equipment, Illinois Traction System.

Ohio Electric Railway, Cincinnati, Ohio, reported in the ELECTRIC RAILWAY JOURNAL of April 16, 1910, as having ordered 10 passenger, smoking and baggage cars from the Cincinnati Car Company, has drawn the following specifications for these cars:

Seating capacity.....	58	Curtain fixtures.....	
Weight	45,000 lb.Curtain Sup. Co.	
Bolster centers, length	38 ft. 6 in.	Curtain material...Pantasote	
Length over vestibule.....	60 ft. 2 in.	Hand brakes.....Peacock	
Width over sills.....	8 to 8½ in.	Heating system	
Sill to trolley base.....	9 ft. 10 in.Peter Smith hot water	
Height from top of rails	to sills	Headlights.....G. E. arc	
.....45 in.		Journal boxes	Sym.
Body,	wood	Motors	four West-121
Interior trim.....		Paint.....	Pullman standard
.....Honduras mahogany		Roofs.....	Monitor deck
Underframe	composite	Sanders	air
Air brakes	West	Sash fixtures	Edwards
Bumpers.....	8 in x ½ in	Seats, style	H. & K.
(steel plate)		Seating material	
Car trim.....	polished bronzeplush and leather	
Control ...	West. automatic	Step treads	Mason
Couplers		Trolley retrievers...Knutson	
.....McConway & Torley		Trucks, type..Taylor M.C.B.	
		Wheels	37 in. steel

TRADE NOTES

Ohmer Fare Register Company, Dayton, Ohio, is equipping 79 cars of the Eastern Pennsylvania Railway, Pottsville, Pa., with Ohmer registers.

Kellogg Switchboard & Supply Company, Chicago, Ill., announces that R. C. Coyne will take charge of the Wisconsin territory of the company with headquarters for the present at Delavan, Wis.

B. F. Reamy, formerly connected with the mechanical department of the Interborough Rapid Transit Company,

New York, N. Y., has opened an office at 229 Broadway, New York, where he will engage in the sale of general railway supplies.

Mead-Morrison Manufacturing Company, Cambridge, Mass., engineer and manufacturer of elevating and conveying machinery and hoisting engines, announces that it is at the present time working to the extent of its facilities and, in fact, has 50 more machinists engaged than ever before at one time.

S. F. Bowser & Company, Inc., Ft. Wayne, Ind., have appointed Edward H. Barnes, Atlanta, Ga., as their Southern representative. Mr. Barnes has been in the railway supply business for a number of years and was recently associated with the Bass Foundry & Machine Company, Ft. Wayne, Ind. He was in the operating department of the Southern Railway for a number of years before he became connected with the Bass Foundry & Machine Company.

Cooper Heater Company, Carlisle, Pa., has received contracts to equip the following lines with Cooper pressed steel hot water heaters; Milwaukee Northern Railway, Stark Electric Railroad, Missouri & Kansas Interurban Railway, Shamokin & Mt. Carmel Transit Company, Shamokin, Pa.; Lehigh Traction Company, Hazleton, Pa.; also to equip the new pay-as-you-enter cars of the United Transit Company, Reading, Pa., and the Lehigh Valley Transit Company, Allentown, Pa.

ADVERTISING LITERATURE

Economy Oil Cup Company, Augusta, Ga., has issued a booklet in which are set forth the numerous advantages of the Economy oil cup.

Pawling & Harnischfeger Company, Milwaukee, Wis., has reprinted, in the form of a folder, an article from the July issue of "Factory" entitled "Four Laborers Instead of Thirty."

Walter A. Zelnicker Supply Company, St. Louis, Mo., has issued list No. 113 of new and second-hand rails, cars, power-house equipment and machinery which it has on hand for immediate shipment.

The J. G. Brill Company, Philadelphia, Pa., has reprinted in pamphlet form the editorial "Two-Motor Equipments for City Cars," which was published in the ELECTRIC RAILWAY JOURNAL of June 11, 1910, page 1015. The text is accompanied with two illustrations of the Brill No. 39-E single-motor truck.

Wheeler Condenser & Engineering Company, Carteret, N. J., has reprinted the paper entitled "Condensers for Small Central Stations," which was presented by George H. Gibson, at the annual convention of the Missouri Electric, Gas, Street Railway & Waterworks Association, held at Jefferson City, Mo., on April 16, 1910.

Topping Brothers, New York, N. Y., have published a book describing the "Mechanigraph," a machine which instantly makes transparent and printable an opaque pencil or pen drawing at a cost of approximately one-third of a cent per square yard. Specimens of the work possible with this device are reproduced in the publication.

National Brake & Electric Company, Milwaukee, Wis., has issued Publication No. 391 entitled "National Air Compressors," in which the National air compressors for general industrial purposes are described and illustrated. The publication contains 68 pages and is concluded with a series of tables giving dimensions, capacities and other data regarding National compressors.

Trussed Concrete Steel Company, Detroit, Mich., has issued a catalog describing and illustrating its rib metal reinforcement. Among some of the users of the company's product are the Chicago (Ill.) Railways, Third Avenue Railroad, New York; San Diego (Cal.) Electric Railway, Second Avenue Railroad, New York, and Omaha & Council Bluffs Street Railway, Omaha, Neb.

Jeffrey Manufacturing Company, Columbus, Ohio, has issued Bulletin No. 42 in which its coal-handling and mine-equipment machinery is described. The publication contains several photographic views which show installations where Jeffrey conveyers are used. The company has also issued Booklet No. 28, which shows Jeffrey conveying machinery for handling stone, sand, gravel, ores, etc.